Rules Document for Glycemic Control

# Summary

This document describes the contents–the “encoding”–of the Glycemic Control KnowledgeBase (KB(; that is, the patient characteristics, including diagnoses, conditions, laboratory values, glycemic control, and other medications, that are used to evaluate each patient for therapeutic drug options.

Note: text of messages in KB have been revised and are not exactly the same as written here.

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# Overview

## Background

The Glycemic Control Protégé KnowledgeBase (KB) captures the recommendations for the management of Type 2 Diabetes (DM) described in the 2017 “VA/DoD Clinical Practice Guideline for the Management of Type 2 Diabetes Mellitus in Primary Care” (1), as well as the Clinical Guidance document, “Type 2 Diabetes: Glucose-Lowering Drug Selection Guidance” (2) written by the VA Pharmacy Benefits Management (PBM) Services, Medical Advisory Panel and VISN Pharmacist Executive. Links to these references, as well as other documents and papers used, can be found in Appendix K: References.

This “Rules Document” has been created for the MedSafe Quality Enhancement Research Initiative (QUERI) Clinical Decision Support (CDS) project. Contributors are Connie Oshiro, PhD, Michael Ashcraft MD, Geoffrey Tso, MD, Omar Usman, MD, MBA, and Susana Martins, MD, MSc. The project Principal Investigator is Mary Goldstein, MD. The MedSafe CDS project is one of 3 projects in the VA HSR&D MedSafe QUERI project with Principal Investigators Paul Heidenreich, MD and Mary Goldstein, MD.

The KB was created to encode the clinical knowledge for a CDS system intended to provide recommendations to health professionals who are caring for patients with DM-2 who did not meet the HbA1c <= 9 or glycosylated hemoglobin <= 11 performance measure goals. These patients will be identified via the VISN 21 Pharmacy Benefits Management (PBM) Clinical Dashboard, a panel management tool. The VISN21 Clinical Dashboard for PACT teams draws on VA structured data to identify patients who are not meeting Healthcare Effectiveness Data and Information Set (HEDIS) performance measures for specific chronic diseases. The Clinical Dashboard displays the data used to determine whether or not the patient is meeting these measures. In the MedSafe QUERI project, we are linking CDS to the Clinical Dashboard to provide recommendations for patients who are not meeting their performance measures. Patients who fail the DM Performance measure for poor HbA1c control (VA dmg23h) will be identified by the Clinical Dashboard and will be the starting set of patients who *could* receive CDS recommendations. Therefore, the CDS does not provide recommendations regarding care management when patients are already meeting measures. The recommendations will be integrated with the VISN 21 Clinical Dashboard. A brief description of the Clinical Dashboard can be found in references (3) and (4) in Appendix K: References.

The KB is only one part of an overall architecture for the CDS which also includes processes for extracting and preparing patient data, an execution engine (aka guideline interpreter) to process the patient data against the KB, generation of recommendations from the execution engine, and presentation of the recommendations in a user interface on the Clinical Dashboard. The overall structure follows the EON model, a component-based approach to automation of protocol-directed therapy.

This Rules Document specifies the expected behavior of the CDS. It defines the clinical knowledge about DM that is included in the CDS. Of note, this description of the behavior is specific to the DM KB, and the behavior, including the terms and definitions, is not exactly the same as in other disease KBs.

## Use of the Rules Document

The primary way to test the encoding of a KB and the execution engine is by comparing the CDS output to the recommendations from a Domain Expert (DE), using real patients, and in accordance with the agreed rules as specified in this document. We refer to this process as “offline testing.” This Rules Document was created, in part, for clarity about the guideline knowledge encoded in the KB and the recommendations that should be made given specific patient clinical data.

This Rules Document is a record of what clinical knowledge is—or what should have been—encoded in the KB. This document is used by the DE when offline testing in two ways:

1. To provide recommendations consistent with the Rules Document. A comparison of the DE recommendations with the output of the CDS will verify that what was intended to be encoded has been encoded (recognizing that CDS output is determined not only by the KB encoding but also by patient data entered to the system, the execution engine, and the output display).
2. To identify gaps or extensions to the KB that become clear in the context of real patients.

**The following sections describe what has been encoded in the DM Glycemic Control KB**

# Eligibility, Goals, and Limitations

## Eligibility

Eligible patients are those

* Patients with either
  + A diagnosis of DM-2 (based on ICD-9 and ICD-10 codes, see Appendix A: ICD-9 and ICD-10 Codes for DM-2)

OR

* + No diagnosis of DM2 but who have an active prescription of Diabetes glycemic control medications (see Appendix B: Glycemic Control Medications)

AND

* Age >= 18 and <=75

AND

* Who do NOT have a diagnosis of DM-1 only (note: a patient with Dx of DM1 and DM2 is still eligible)[[1]](#footnote-1)

A patient who is eligible will be evaluated for drug recommendations. Those who are not eligible (ineligible) will not be evaluated for drug recommendations and are indicated simply as “ineligible.” An ineligible patient differs from a patient who is “out of scope” (described in Section 4.0 Behavior of the CDS) in that there is no message displayed explaining why the patient is ineligible, whereas the “out of scope” patient receives a message why therapeutic recommendations are not given.

### Pregnant Patients

Pregnant women are not eligible, but this information cannot be easily captured at the VA. Therefore, therapeutic recommendations will be given to women of child bearing ages (18-50) with the assumption that they are not pregnant.

The following primary recommendation will be issued regarding these women: “Warning: recommendations do not apply to pregnant women.” Note that this warning will not appear if their HbA1c is older than 1 year because no therapeutic recommendations are given to these patients (instead, we only recommend getting a new HbA1c).

## Goals

* Glycemic Control: HbA1c <= 9 or glycosylated hemoglobin <= 11 in the past year

These goals were set to be consistent with PBM dashboard goals, which are based upon the goals set by the VHA Office of Reporting, Analytics, Performance, Improvement, and Deployment (RAPID) Performance Measurements. Because the CDS is triggered only when the patient is not at goal, the eligibility criteria, “HbA1c>9 or glycosylated hemoglobin>11” (See above) was selected to be consistent with this goal.

Limitations

We describe here two limitations of the CDS;

* We provide recommendations for only a subset of the all the possible DM drugs
* We assumed that the patient has had his prescription for a “reasonable” period of time, yet is still not at goal. That is, we did not consider the issue date of the patient’s DM medication relative to the date that we provide the recommendations

Subset of DM drugs

A new VA guideline for DM became available late in the development of the Rules Document and KB. We analyzed the new guideline in comparison with the existing KB and determined a method to update the KB. In this updated KB, we evaluated a subset of DM drugs. These drugs were selected because they are currently first line therapy (as defined by VA/DoD GL) or second line therapy drug classes (as defined by VA Consolidated Mail Outpatient Pharmacy (CMOP)). We further limited second line drug classes to only the formulary drugs as described by VISN21. These drugs are as follows:

* Biguanides (metformin or metformin extended release), first line medication
* Glipizide
* Pioglitazone (a thiazolidinedione)
* Saxagliptin (a dipeptidyle peptidase-inhibitor (DPP-4 inhibitor))
* Empagliflozin (sodium-glucose cotransporter-2 (SGLT2) inhibitor), only if patient has Cardiovascular Disease (CVD)

We refer to this list of five drugs as “encoded drugs.” See Appendix C: List of Encoded Drugs for a list of these drugs. All other DM medications (except insulin) are referred to as “non-encoded drugs.”

For patients who have an active prescription of a “non-encoded drug” (a DM medication that is not one of these five encoded drugs), we do not provide any therapeutic recommendations, because the patient is considered “out of scope.” There are other reasons a patient is considered “out of scope.” See Appendix D: List of Non-encoded Drugs for the list of these “non-encoded drugs” and Section 4.0 Behavior of the CDS, for a more complete description of when a patient is “out of scope” and other “out of scope” conditions.

Issue date of DM drug vs date of CDS recommendations

For the current CDS, we assumed that the patient had had his DM medication for a “reasonable” period of time, but was still not at goal. More specifically, we did not consider the issue date of a patient’s DM prescription relative to the date that we provided recommendations. That means that a patient could have received his/her new prescription (or medications) within the last few days. Any recommendations we provide would be, in such a situation, premature. Inclusion of the an issue date, or a consideration of an appropriate cut off date of “reasonable” period of time, is a wish list item, and listed in the Appendix.

# Drugs Therapies

Drugs can be recommended as first or second line therapies. Drugs are evaluated based upon the presence of conditions (laboratory values, diagnoses, etc.) encoded as one or more of the following conditions:

* First line drug
* Second line drug
* Compelling indication
* Relative Indications
* Absolute Contraindications
* Relative Contraindications
* Do not Start Controllable Criteria
* Do not Start Uncontrollable Criteria
* Do not Intensify Controllable Criteria
* Do not Intensify Uncontrollable Criteria
* Bad Drug Partner (the presence of another drug that interacts with the DM drug)

First, these concepts are defined in general terms. Then, each of the encoded drugs are broken down by the specific conditions listed above (e.g. indications, contraindications, etc.). Based upon this evaluation, drugs are either recommended, not recommended, substituted, or doses are increased.

## Definitions

We consider a patient to have an active prescription for a drug if the provider has written a prescription for that drug. More specifically, we call an active prescriptions, those medications that have an RxStatus=”Active”, “Hold”, “Provider Hold” or “Suspended”, and the Issue date of the prescription (date prescription was written) is less than a year old. This is consistent with what is done in the PBM Clinical Dashboard. That start date of the prescription used on EON is the release date of the medication (when the patient has possession of the drug, picked up by the patient or mailed to the patient). It is therefore possible that, in EON, a medication is considered active, but does not have a start date, because the patient does not yet have possession of the medication.

### First line drug

Drug that is a first line drug will be recommended if a patient has either

* + - a diagnosis of DM-2 or
    - no diagnosis of DM-2 but the presence of DM medications

and the drug is not contraindicated (see below). First line drugs are displayed first[[2]](#footnote-2) as a therapeutic option

Biguanide (metformin) is a first line drug.

### Second line drug

Drugs that are second line drugs will be recommended if a patient has either

* + - a diagnosis of DM-2 or
    - no diagnosis of DM-2 but the presence of DM medications

and the drug is not contraindicated (see below). Second line drugs are displayed after first line drugs as therapeutic options.

Glipizide, pioglitazone, and saxagliptin are second line drugs. Empagliflozin is a second line drug only if the patient has a diagnosis of CVD.

### Compelling indication

A diagnosis or any condition, other than DM-2, that makes a drug *strongly* advisable (compelling). This is not used in DM. The concepts of “first line drug” and “second line drug” are used instead.

### Relative indication

A diagnosis or any condition, other than DM-2, that makes a drug advisable. When there are multiple second line drugs, this indication is used to order the display of drugs the second line drugs. That is, if a patient has such a diagnosis or condition, the second line drug with this relative indication will displayed above other second line drugs.

### Absolute contraindication

A drug will not be recommended if patient has this condition and the drug will be stopped (or a substitution recommended) if the patient has an active prescription of the drug. The drug will not be visible as a therapeutic option.

### Relative contraindication

If a drug is recommended and is listed as a therapeutic option (see above) and if the patient has this condition, then the drug will be displayed lower in the list than those without the relative contraindication. If the patient has an active prescription of the drug and this condition exists, the drug will not be stopped.

### Do not start controllable criteria

Evaluating a drug for a recommendation often depends upon laboratory values or other measurements. If relevant measurements are missing (e.g. missing eGFR in the past month), this constitutes a “Do not start controllable criteria.” In this case, the drug will be visible as a therapeutic option, but the recommendation will be “blocked” (controllable) and In the CDS we refer to this as a “blocked controllable” recommendation. The recommendation for adding the drug is visible to the user, but it is presented as a recommendation that would have been made had the missing data been available and normal.

### Do not start uncontrollable criteria

Unlike the previous criteria (blocked controllable), there are often laboratory values or diagnoses that prevent starting a drug; for example, 30 <= eGFR < 45 in the past month. In this case, the drug will NOT be visible as a therapeutic option. The “Do not start uncontrollable criteria” differs from an “Absolute contraindication” because it applies only to starting a new drug, whereas the “Absolute contraindication” applies to both starting and stopping a drug.

### Do not increase dose controllable criteria

Criteria similar to “Do not start controllable criteria,” but applies when there is an active prescription for the drug. Patient has an active prescription for a drug whose dose needs to be increased, but the change is “blocked” because there are missing data, a “controllable” criteria (e.g. missing eGFR in past year). The increase in dose will be visible as a therapeutic option, but it is presented as a recommendation that would have been made had the missing data been available and normal.

### Do not increase dose uncontrollable criteria (“blocked increase dose uncontrollable,” cannot increase dose, add drug)

Criteria similar to “Do not start uncontrollable” criteria, but applies when there is an active prescription for the drug. Patient has an active prescription for a drug whose dose could be increased, but cannot because of diagnoses or labs that are “uncontrollable” criteria (e.g. 30 <= eGFR < 45 in the past year). In this case, the increase dose recommendation will NOT be visible as a therapeutic option, but rather, a message will be issued that the dose cannot be increased. If a patient is not at goal, then additional drugs will be recommended.

### Bad drug partner

List of drugs that change, interfere with, or otherwise negatively affect the action of the listed DM drug. This may be a drug in the same class, a DM drug in a different class, or a drug in a different therapeutic area. Some action needs to be taken. In the evaluation of candidate drugs to add, if a patient already has an active prescription of a bad drug partner of that candidate drug, the candidate drug will be ruled out and will not appear as a therapeutic option. The behavior of the CDS when the patient has active prescriptions of bad drug partners is described in later sections. ‘

## Messages associated with drug recommendations

There are often messages associated with drug recommendations. These messages are referred to as “Collateral messages” and appear next to the drug recommendation itself. These Collateral messages are also described in the Drug Therapies section.

Collateral messages have one of three message types:

* + - “do not add controllable condition”
    - “do not intensify controllable condition”
    - General info

The first message type is associated with messages triggered when a “Do not start condition” is encountered. The next message type is associated with messages triggered when a “Do not intensify condition” is encountered. Finally, a “General info” message contains, as the type implies, general information about the drug, including educational information.

When a patient has an active prescription of a DM medication and is not contraindicated, the drug will not be recommended (it may be at its maximum possible dose), but there can still be messages associated with that DM drug. Such messages are *not* Collateral messages. These non-Collateral messages have one of the following message types:

* + - “Primary Recommendation”
    - “Drug-Related”
    - General info

Messages associated with a particular drug are also described in the Drug Therapy Section. For a more detailed description of such non-Collateral messages, as well as other messages, please see 5.0 Additional Messages.

## Note on Dates & Session Times

The KB and execution engine evaluates patients on a fixed date. All diagnoses recorded before that date are considered and all laboratory values recorded *two years* before that date are used. This fixed date is referred to as the “session time.”

Normally, “session time” is the current date. However, for testing and debugging purposes, we need to have patient data that does not change. For this purpose, we extract all relevant patient data and fix the date that that data was extracted. Therefore, the “session time” is the date of the data extraction, and not the current date.

When a time frame is given in the sections below, e.g. “within the past year,” this time frame is relative to this session time and, the most recent laboratory value is always used. For example, the phrase, “eGFR < 30 in the past year” should be read as “the most recent value of eGFR within the past year, relative to the session time.”

Update 6/12/2018: Fixing the session date alone, unfortunately, does not freeze the input medication data. As mentioned in section 3.1, Definitions, active prescriptions are those medications that have an RxStatus=”Active”, “Hold”, “Provider Hold” or “Suspended”, and the Issue date of the prescription (date prescription was written) is less than a year old. If a patient receives a new prescription after the session date, the old prescription is discontinued (because he/she has a new prescription). The new prescription is ignored because the issue date is after the session date, and the old prescription is also ignored because the RxStatus=Discontinued. In order to freeze all data, all data must be extracted and not be modified.

For this Rules Document: 1 year is equal to 365 days and 1 month is 365.0/12 = 30.4 days. This contrasts with the Clinical Dashboard, which uses “1 year is equal to 370 days and 1 month is 30 days.” We are aware of the discrepancy and believe the difference will not affect our recommendations or patient safety.

## Medication Possession Ratio

A patient’s adherence to a medication is calculated via a Medication Possession Ratio (MPR). This MPR is the total number of days supplied (of drugs received by the patient) divided by the total number of days elapsed between the first and last fill date (of the prescription). For a more detailed description of this ratio, please see reference (5) in Appendix K: References.

## Encoded Drugs

### Biguanide (metformin), first line therapy

**Drug class:** biguanide

* Relative indication (none)
* Absolute contraindication:
  + Absence of biguanide and eGFR < 30 in the past 30 days
  + Presence of biguanide and eGFR < 30 in the past year
  + ADR of anaphylaxis to biguanide
  + ADR of acidosis to biguanide
    - Acidosis may be recorded as increased lactic acid or increased serum lactic acid and are therefore also considered as absolute contraindications.[[3]](#footnote-3)
* Relative contraindication:
  + Bicarbonate < 24 [[4]](#footnote-4)
  + AST > 3\*ULN (3\*ULN = 123) in the past year[[5]](#footnote-5)
  + ALT > 3\*ULN (3\*ULN = 135) in the past year
  + Absence of biguanide and 45 <= eGFR < 60 in the past 30 days

If a patient does not have an active prescription of biguanide and has 45<=eGFR<60 in the past month, and we recommend adding metformin, we will issue the collateral message

“Pt has 45<=eGFR<60. Recommend monitoring GFR every 3-4 months.”

* Do not start controllable criteria:
  + Absence of eGFR in past in the past 30 days

If a patient is missing an eGFR in the past 30 days, we will order a new eGFR and one of the following three collateral “do not start controllable” messages will be issues:

if there is no eGFR, then the following collateral on screen message will be displayed:

“Would add metformin, but missing GFR.”

If there is an eGFR older than 30 days and eGFR>=45 then the following collateral, parameterized message will be displayed:

“Would add metformin, but old GFR: ?value (?date).”

where ?value is the value of the most recent eGFR and ?date is the date of the lab.

* + - If there is an eGFR older than 30 days and eGFR<45, then the following collateral, parameterized message will be displayed:
      * “Cannot recommend metformin when GFR < 45 and old: ?value (?date)”
  + Absence of bicarbonate in the past year
  + Absence of AST and ALT in the past year

If a patient is missing bicarbonate, or AST and ALT in the past year, then, we will order a new lab and the following collateral “do not start controllable” message will be displayed:

* + - * “Would add metformin, but old lab: (?missingMFlabAdd).”

Where (?missingMFlabAdd) is whichever lab values are missing, i.e., bicarbonate, (AST and ALT), or a combination of these lab values.

* Do not start uncontrollable criteria:
  + 30 <= eGFR < 45 in past month
* Do not intensify controllable criteria:
  + Absence of eGFR in the past year

If a patient is missing an eGFR in the past year, we will order a new eGFR and one of the following three collateral “do not intensify controllable” messages will be issues:

if there is no eGFR, then the following message will be displayed:

“Would increase metformin, but no GFR.”

If there is an eGFR older than a year and eGFR>=45 then the following message will be displayed:

“Would increase metformin, but old GFR: ?value (?date)” where ?value is the value of the most recent eGFR and ?date is the date of the lab.

* + - If there is an eGFR older than a year and eGFR<45, then the following message will be displayed:
      * “Cannot recommend increasing metformin when GFR < 45 and old: ?value (?date)”
  + Absence of bicarbonate in the past year
  + Absence of AST and ALT in the past year

If a patient is missing bicarbonate, or, AST and ALT in the past year, then we will order a new lab and the following collateral “do not intensify controllable” message will be displayed:

* + - * “Would add metformin, but old lab: (?missingMFlabAdd).”

Where (?missingMFlabAdd) is whichever lab values are missing, i.e., bicarbonate, (AST and ALT), or a combination of these lab values.

* Do not intensify uncontrollable criteria:
  + 30 <= eGFR < 45 in past year
* Bad drug partners:
  + Other biguanides. That is, metformin is a bad drug partner of metformin extended release; and metformin extended release is a bad drug partner of metformin.
* Other Collateral messages, of message type=General info, that are issued when we recommend adding metformin
  + Stop metformin if pt has hypoxemia, dehydration or sepsis.
  + Check B12 levels every 2 years as pt has Rx for metformin.
  + Hold metformin prior to and 48 hrs after IV contrast studies.
* Other messages, that are NOT collateral messages, related to metformin :
* If patient has an active prescription of metformin and 30 <= eGFR < 45, issue the Primary recommendation:

“GFR ?value (?date). Assess risk with metformin.”

* If patient is not at goal and not at the maximum dose of metformin, but we cannot increase the dose because 30 <= eGFR < 45 in the past year, we will recommend adding a new drug, and issue the following Drug related message:

“Not able to increase ?notMaxDose. Adding another DM med.”

Where ?notMaxDose is the name of the drug (metformin or metformin XL) .

* If a patient has an active prescription of metformin and metformin XL, we will issue the following Drug-related message:

“Stop metformin or metformin XL”

* + If a patient has an active prescription of biguanide and has 45<=eGFR<60 in the past year, we will issue the following General Info message

“As GFR ?value (?date). would recheck q3-4 months.”

* If a patient has an active prescription of metformin, issue the following General info messages:

“Rx for metformin. Check GFR annually.”

“Check B12 levels every 2 years as pt has Rx for metformin.”

### Glipizide, second line therapy

**Drug class:** sulfonylurea

* Relative indication (none)
* Absolute contraindication:
  + ADR of {anaphylaxis or angioedema or Stevens-Johnson Syndrome (SJS) or cardiac arrest or coma or thrombocytopenia} to glipizide, glyburide, glimepiride, or any first-generation sulfonylurea or sulfa drug (see Appendix E: List of First-generation Sulfonylureas and Appendix F: List of Sulfa Drugs)
    - Anaphylaxis and angioedema may present (and be recorded) as a reaction other than simply “anaphylaxis” or “angioedema.” Therefore, these other reactions, are also considered as absolute contraindications. These reactions are: lip swelling, swelling of throat, swelling-lips, swelling-throat, swelling-tongue, oral swelling, throat spasm, eye swelling, facial swelling, edema of tongue, airway constriction, angioedema, angioedema of eyelids, angioedema of lips, angioedema of tongue, angioneurotic edema of larynx, laryngeal spasm, hives.[[6]](#footnote-6)

The authors acknowledge that an ADR to diuretics with sulfa moiety by patients with sulfa allergy are now thought to be a general predisposition to allergy rather than a specific reaction to the sulfa in the diuretic. We plan to investigate the cross-reactivity of sulfonylureas, such as glipizide, to determine if this is the case, too. Added to “Wish list/to do’s”. For now, we have left the ADRs as described in this section.

* Relative contraindication:
  + Hypoglycemia
  + HbA1c < 6
  + ADR to any first- or second-generation sulfonylurea where reaction is not an absolute contraindication.[[7]](#footnote-7)
  + ADR to sulfa drugs where reaction is not anaphylaxis or angioedema (see Appendix F: List of Sulfa Drugs for list of drugs classified as sulfa drugs)
  + Personal history of allergy to sulfonamide (ICD-9: V14.2, ICD-10: Z88.2)

For a more detailed description of ADRs, please see Appendix I: Dealing with Adverse Reactions (ADRs).

* Do not start criteria:
  + ADR renal failure or renal impairment to other sulfonylureas or sulfa drugs
* Do not intensify criteria (none):
* Bad drug partner:
  + Other sulfonylureas (i.e. glipizIde XL, glyburide, or glimepiride). Do not start glipizide if patient has an active prescription of another sulfonylurea. If patient has an active prescription of two sulfonylureas, (glipizide plus glipizide XL, glyburide, or glimepiride) then a one sulfonylurea.
* Other messages, that are NOT collateral messages, related to glipizide
* If a patient has an active prescription of two sulfonylureas, we will issue the following Drug-related message:

“Stop one of the 2 sulfonylureas.”

Or, when the 2 drugs are, specifically, glipizide and glipizide XL,

“Stop glipizide or glipizideXL.”

### Pioglitazone, second line therapy

**Drug class:** thiazolidinedione

* Relative indication (none)
* Absolute contraindication:
  + Bladder cancer
  + ADR of thrombocytopenia to pioglitazone or rosiglitazone
  + ADR of anaphylaxis to pioglitazone or rosiglitazone
* Relative contraindication:
  + Osteoporosis
  + Cirrhosis
* Do not start controllable criteria:
  + Absence of AST and ALT in the past year

If a patient is missing AST and ALT in the past year, then, we will order a new lab and the following collateral “do not start controllable” message will be displayed:

“Would recommend thiazolidinedione but missing AST and ALT.”

* Do not start uncontrollable criteria:
  + AST > 3\*ULN (3\*ULN = 123) in the past year
  + ALT > 3\*ULN (3\*ULN = 135) in the past year
  + Heart Failure
* Do not intensify controllable criteria:
  + Absence of AST and ALT in the past year

If a patient is missing AST and ALT in the past year, then, we will order a new lab and the following collateral “do not intensify controllable” message will be displayed:

“Would recommend thiazolidinedione but missing AST and ALT.”

* Do not intensify uncontrollable criteria:
  + AST > 3\*ULN (3\*ULN = 123) in the past year
  + ALT > 3\*ULN (3\*ULN = 135) in the past year
  + Heart Failure
* Bad drug partner:
  + Gemfibrozil: do not start if patient has an active prescription of gemfibrozil; if patient has active prescriptions for gemfibrozil *and* pioglitazone, an alert is issued and no drug recommendations are provided
  + Other thiazolidinediones: do not start pioglitazone if patient has an active prescription of another thiazolidinedione. See Drug-related message below
* Other Collateral messages, of message type=General info, that are issued when we recommend adding pioglitazone:

“Check liver tests q3 months for 1 year.”

“Caution in presence CYP2C8 inhibitor (e.g. gemfibrozil) or CYP2C8 inducer (e.g. rifampin).”

For women 18<=age<50,

“Thiazolidinediones may restore ovulation in premenopausal anovulatory females.”

* Other messages, that are NOT collateral messages, related to pioglitazone
  + If a patient has active prescriptions of two TZD’s, the following Drug-related message will be displayed:

“Stop one of the 2 TZDs.”

* + If patient has an active prescription of pioglitazone and has heart failure, the following General Info message will be displayed

“Use caution with TZD and CHF.”

### Saxagliptin, second line therapy

**Drug class:** dipeptidyle peptidase-4 (DPP-4) inhibitor

* Relative indication (none)
* Absolute contraindication:
  + Pancreatitis
  + ADR of anaphylaxis to DPP-4 inhibitors
  + ADR of angioedema to DPP-4 inhibitors
* Relative contraindication:
  + Heart Failure
  + eGFR < 45 most recent at any time frame
* Do not start controllable criteria:
  + Absence of eGFR in the past the past 30 days

If a patient is missing an eGFR in the past 30 days, we will order a new eGFR and one of the following collateral “do not add controllable” messages will be issues:

if there is no eGFR, then the following message will be displayed:

“Would add saxagliptin, but missing GFR.”

If there is an eGFR older than 30 days then the following message will be displayed:

“Would add saxagliptin, but old GFR: ?value (?date).”

* Do not start uncontrollable criteria (none)
* Do not intensify controllable criteria:
  + Absence of eGFR in the past year

If a patient is missing an eGFR in the past year, we will order a new eGFR and one of the following collateral “do not intensify controllable” messages will be issues:

if there is no eGFR, then the following message will be displayed:

“Would increase saxagliptin, but missing GFR.”

If there is an eGFR older than 30 days then the following message will be displayed:

“Would increase saxagliptin, but old GFR: ?value (?date).”

* Do not intensify uncontrollable criteria
  + eGFR<45 in past year and dose > 2.4
* Bad drug partner:
  + Other DPP-4 inhibitors: do not start saxagliptin if patient has an active prescription of other DPP-4 inhibitors. See Drug-related message below.
* Other Collateral messages, of message type=General info, that are issued when we recommend adding saxagliptin:

“Adjust saxagliptin for renal impairment or with CYP3A4/5 inhibitor.”

* Other messages, that are NOT collateral messages, related to saxagliptin
  + If patient has an active prescription of saxagliptin and dose>2.5 and eGFR <45 in the past year, then the following Drug-related message will be displayed:

“ALERT: Decrease saxagliptin dose to 2.5 when GFR ?value (?date) less than 45.”

* + If a patient has active prescriptions of two DPP4 inhibitors, the following Drug-related message will be displayed:

“Stop one of the 2 DPP4 inhibitors.”

* If patient is not at goal and the dose of saxagliptin>2.4, and we cannot increase the dose because eGFR < 45 in the past year, we will recommend adding a new drug, and issue the following Drug related message:

“Not able to increase ?notMaxDose. Adding another DM med.”

Where ?notMaxDose is the name of the drug (saxagliptin) .

### Empagliflozin, second line therapy

**Drug class:** sodium-glucose cotransporter-2 (SGLT2) inhibitors

Recommendations based on VA Pharmacy Benefits Management Services “Criteria for Use” (6) and New England Journal article “Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes” (7) (8). Use of this drug is indicated only in the presence of CVD.

* Relative indication:
  + CVD as defined by Appendix G: CVD Codes for use with Empaglifozin
* Absolute contraindication:
  + Absence of empagliflozin and eGFR < 45 in past 30 days
  + Presence of empagliflozin and eGFR < 45 in past year
  + ADR of anaphylaxis to SGLT2 inhibitors
* Relative contraindication (none)
* Do not start controllable criteria
  + Absence of eGFR in past 30 days

If a patient is missing an eGFR in the past 30 days, we will order a new eGFR and one of the following three collateral “do not start controllable” messages will be issues:

if there is no eGFR, then the following collateral on screen message will be displayed:

“Would add empa, but missing GFR.”

If there is an eGFR older than 30 days and eGFR>=45 then the following collateral, parameterized message will be displayed:

“Would add empa, but old GFR: ?value (?date).”

where ?value is the value of the most recent eGFR and ?date is the date of the lab.

* + - If there is an eGFR older than 30 days and eGFR<45, then the following collateral, parameterized message will be displayed:
      * “Cannot recommend adding empa when GFR < 45 and old: ?value (?date)”
* Do not start uncontrollable criteria (none)
* Do not intensify controllable criteria:
  + Absence of eGFR in past year

If a patient is missing an eGFR in the past year, we will order a new eGFR and one of the following three collateral “do not intensify controllable” messages will be issues:

if there is no eGFR, then the following collateral message will be displayed:

“Would increase empa, but missing GFR.”

If there is an eGFR older than 30 days and eGFR>=45 then the following collateral message will be displayed:

“Would increase empa, but old GFR: ?value (?date).”

where ?value is the value of the most recent eGFR and ?date is the date of the lab.

* + - If there is an eGFR older than 30 days and eGFR<45, then the following collateral, parameterized message will be displayed:
      * “Cannot recommend increasing when GFR < 45 and old: ?value (?date)”
* Do not intensify uncontrollable criteria (none)
* Bad drug partner:
  + Other SGLT2 inhibitors: do not start empagliflozin if patient has active prescriptions for other SGLT2 inhibitors. See Drug-related message below.
* Other Collateral messages, of message type=General info (none)
* Other messages, that are NOT collateral messages, related to empagliflozin
  + If the patient has active prescriptions of two SGLT2 inhibitors, the following Drug-related message will be displayed

“Stop one of the 2 SGLT2 inhibitors.”

# Behavior of the CDS

CDS evaluates all eligible patients (defined above). However, therapeutic options are not provided for all patients.

Therapeutic recommendations are NOT provided:

1. If a patient’s HbA1c or glycosylated hemoglobin is older than 1 year. Instead, we recommend that a new HbA1c is ordered.
2. If a patient is at goal. Instead a message is issued, “Pt at goal. HbA1c=?value (?date)” where ?value is the most recent value of HbA1c and ?date is the date the values was measured.
3. If a patient has an active prescription of insulin or insulin syringe and therefore is “out of scope.”

If a patient does *not* have an active prescription of insulin, but *does* have a diagnosis of “Long term use of insulin” (icd9=V58.67, icd10=Z79.4), then we issue a message:

“Warning: recommendations do not apply to patients taking insulin.”

1. If a patient has other out of scope conditions, a situation that occurs in one of the following possible conditions:
   1. Patient has active prescriptions for 3 or more encoded DM medications from different drug classes (encoded DM medications described above, under Limitations).

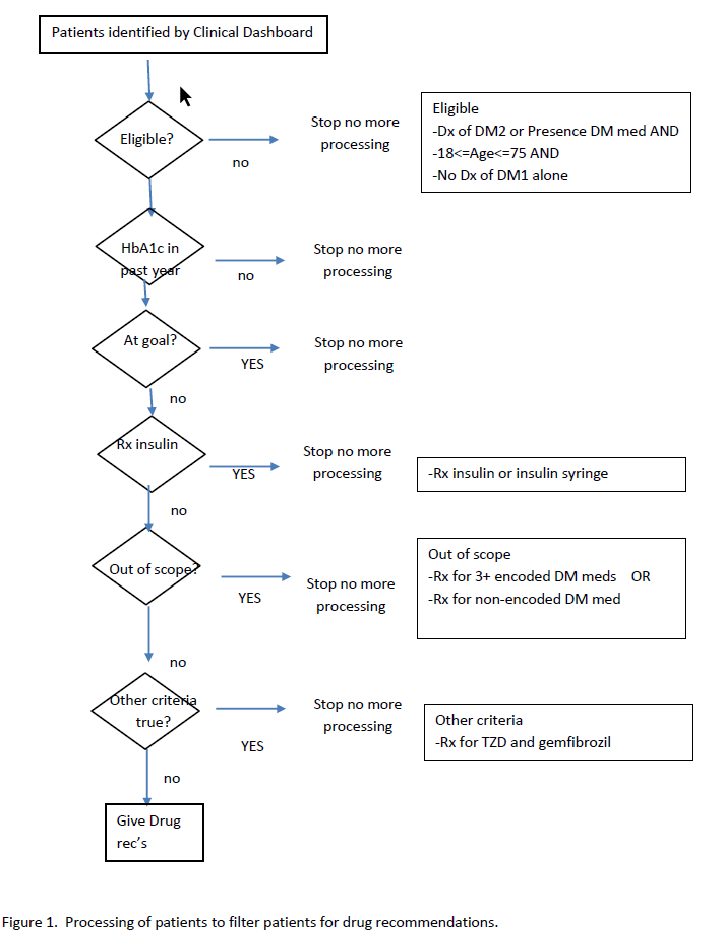
If a patient has active prescriptions of 2 encoded DM medications that are in the same drug class (“bad drug partners”), these two medications “count” as one medication. For example, a patient with an active prescription for Metformin and Metformin ER and pioglitazone will be considered to have 2 medications and will not be out of scope. HOWEVER, we did not account for the situation where the patient has an active prescription of metformin and metformin ER and glipizide and glipizide XL. In principle, this patient should not be out of scope, but currently is out of scope; this particular case is on the wish list.

* 1. Patient has an active prescription for one or more DM medications that are “non-encoded drugs”, described above, under Limitations (to clarify, even if the patient also has an active prescription for an encoded drug, the patient is considered “out of scope”[[8]](#footnote-8).)

1. Or if the following criterion is true:
   1. If a patient has active prescriptions of the following bad drug partners, a thiazolidinedione (pioglitazone) and gemfibrozil, and pioglitazone is not contraindicated.

When a patient is eligible but is “out of scope,” the health professional using the CDS will receive an “out of scope” message. This contrasts with patients who are ineligible (described in Section 2.1). There is no message issued explaining why the patient is not eligible.

The order of the listing of the criteria above is significant. The CDS processes to first find patients who are eligible. If a patient is eligible, then it checks to see if the HbA1c or Glycosylated Hemoglobin is present within the past year (#1 above). If *not*, then only an order for an HbA1c is issued. If an HbA1c within the past year is present, then the CDS checks if the patient is at goal, i.e., if most recent HbA1c<9 in past year or Glycosylated Hemoglobin<11 in past year (#2). If patient is at goal, then no recommendations are given. If not, then the CDS next checks for the presence of insulin or insulin syringe. (#3). If there is an active prescription of insulin or insulin syringe, then the “insulin out of scope” message is issued and there is no more processing. If insulin is not present, but, one or more of the other “out of scope” conditions are present (#4), then out of scope messages are issued and there is no more processing. Multiple out of scope messages can be displayed, if multiple out of scope conditions are present. For example, a patient may have active prescriptions of 3+ encoded drugs as well as an active prescription of non-encoded drugs; two out of scope messages are issued. If none of the “out of scope” conditions are present, then the CDS checks the other criteria (#5) i.e., whether or not pioglitazone and gemfibrozil are present. If pioglitazone and gemfibrozil are not present (#3), then the patient is evaluated for drug recommendations. See Figure 1 (next page).



## Note on Drug Dosages

If a patient has two different active prescriptions for the same drug, the dosages are summed and a recommendation is made using this summed dosage. There will be a message that there are two active prescriptions for the same drug (name of drug) and that we have summed the doses.

* “Patient has 2 active prescriptions for the drug $drug\_dup. The doses have been summed.” $drug\_dup is a variable containing the name of the drug.

If the dose of an active prescription is above its maximum dose, the CDS will display a message indicating that the prescription is above maximum dose, but recommendations will be given as if the drug is at its maximum dose. Values of maximum doses are given in Appendix H: Medication Cutoff Doses.

## Scenarios Background

Therapeutic options are provided if the HbA1c lab value or glycosylated hemoglobin is recorded within the past year and the patient is not at goal (goal is HbA1c <= 9 or glycosylated hemoglobin <= 11, as defined by the VA Performance Measures). Patients are separated into “scenarios” based upon their number of active prescriptions of glycemic control medications. There are 4 possible scenarios:

* Patient is not prescribed any encoded drug for DM
* Patient has active prescription of encoded oral drug
* Patient has active prescriptions of two encoded drugs

Indications, contraindications, and blocked conditions that are used to determine therapeutic options, are described above (Section 3.0 Drugs Therapies).

We wish to emphasize that the CDS and GUI display what it considers to be all possible therapeutic options. For example, the phrase “add a drug” or “add a second line drug”, means that *all* drugs that do not have an absolute contraindication or do not start uncontrollable condition will be displayed. Similarly, the phrase, “increase drug dose” means that *all* drugs that can have their dosage increased will be displayed. This display of actions for multiple drugs does not mean we are recommending that all drugs be added, or that all drugs should have their dosage increased, which is clearly clinically incorrect. Instead, we are simply displaying all therapeutic options from which the provider can select. When making drug recommendations GUI will have a message to emphasize this point.

Please note that we use the term therapeutic options and therapeutic recommendations synonymously here.

## Scenario: No oral drugs

Generally speaking, if a patient is not at goal, the protocol is to add one drug at a time at a low dose, and titrate the drug to its maximum dose before adding a second drug.

If a patient is not at goal, VA/DoD recommends placement on first line therapy: metformin, if they are eligible for metformin. The patient is started at a low dose, which is titrated to the maximum dose. If a patient cannot be on metformin, then second line drugs are recommended. Second line drugs per VISN21 are: glipzide, pioglitazone, saxagliptin, and, only if patient has CVD, empagliflozin. Appendix G: CVD Codes for use with Empaglifozin contains a list of ICD-9 and ICD-10 for the determination of CVD.

If the first and second lines drugs are contraindicated, we will NOT recommend any other DM drug. Instead, we will issue a message with a link to other DM drugs.

We do not use prescription history in the reasoning. That means, if metformin was prescribed for a patient in the past, but is not currently prescribed metformin, we would still recommend metformin.

## Scenario: One oral drug

If a patient has an active prescription for one oral drug and is not at goal, then, in general terms, the one drug:

* Has an Absolute Contraindication or
* Does not have an Absolute contraindication, and is not at maximum dose, and dose can be increased or
* Does not have an Absolute contraindication, and is not at maximum dose, and dose cannot be increased because of a do not increase controllable criteria or
* Does not have an Absolute contraindication, and is not at maximum dose, and dose cannot be increased because of a do not increase dose uncontrollable criteria or
* Does not have an Absolute contraindication and is at maximum dose
* Has a bad drug partner

When the patient has and active prescription of metformin (1) and when the patient instead has an active prescription of a second line therapy (2), a general description of the ensuing recommendation is given below. The five possible recommendations, when the patient has an active prescription of metformin, are indicated with alphabetical labels (e.g. Case A, Case B, etc). Examples using sample patient characteristics are described for these cases can be found in Appendix J: Examples using Sample Patient Characteristics, One Drug Scenario.

### Patient has an active prescription for metformin

* If metformin does not have an absolute contraindication, it is not at maximum dose, and its dose can be increased:
  + Then the recommendation is to increase the dose (Case A)
* If metformin does not have an absolute contraindication, and its dose cannot be increased because of a “do not intensify controllable criteria”:
  + Then metformin would be recommended as a “blocked” recommendation; that is, metformin would be displayed next to a collateral message stating that we would have recommended increasing metformin if the missing lab were present (and normal) (Case B)
* If metformin does not have an absolute contraindication, and its dose cannot be increased because of a “do not intensify uncontrollable criteria”:
  + Then recommend adding a second line drug (Case C)
* If metformin does not have an absolute contraindication, and is at maximum dose:
  + Then recommend adding second line drug (Case D)
* If metformin has an absolute contraindication:
  + Then substitute with a second line drug. (Case E)

### Patient has an active prescription of a second line encoded drug

If a patient does not have an active prescription of metformin, but, rather, a second line encoded drug, then

* If the drug does not have an absolute contraindication, is not at maximum dose, and the dose can be increased:
  + Then increase the dose
* If the drug does not have an absolute contraindication, is not at maximum dose, and its dose cannot be increased because of a “do not intensify controllable criteria”:
  + Then we would recommend increasing the dose as a “blocked controllable increase dose recommendation.” That is, the drug will be displayed with a message that we would have recommended increasing the dose, if the missing lab were available (and normal)
* If the drug does not have an absolute contraindication, is not at maximum dose, and its dose cannot be increased because of a “do not intensify uncontrollable criteria”:
  + Then recommend adding metformin and other second line drugs
* If the drug does not have an absolute contraindication, and is at maximum dose:
  + Then recommend adding metformin and other second line drugs
* If the drug has an absolute contraindication:
  + Then substitute with metformin and other second line therapy

In all cases above, if no drug can be recommended (added or substituted) because of absolute contraindications, then we will issue a message saying so and provide a link to other DM drugs.

### Actions in the presence of bad drug partner, one DM med

* + As mentioned [Section 3.0](#_Drugs_Therapies), there will be no drug recommendations if the patient has active prescriptions of two drugs that are normally not taken together (“bad drug partners”), one of which is a DM medications and the other is not, and the DM medication is not contraindicated. Instead, there will be a Drug-related message stating that the patient has active prescriptions for two drugs that are not normally taken together. Specific, and only example: presence of pioglitazone and gemfibrozil:

“Pt has Rx for gemfibrozil and TZD which is unsafe.”

* + If one of bad drug partners is a DM medication, and the other is not, and the DM medication *is* contraindicated, then there will be a substitution for the DM medication. (Specific example: presence of pioglitazone contraindicated and gemfibrozil).

## Scenario: Two oral drugs

If a patient has an active prescription for two oral drugs and is not at goal, then there are 15 possible actions. See Table 1: Two Drugs Matrix and the descriptions for the cases below. These cases are indicated with numerical labels, e.g. Case 1, Case 2, etc., in contrast to the cases for the One Drug Scenario. Specific examples using sample patient characteristics for the cases below are described in Appendix J [Examples Using Sample Patient Characteristics Two Drug Scenarios](#_Two_drug_Scenario)

### Table 1: Two Drugs Matrix (Two currently prescribed drugs)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Drug 2   |  | | --- | | Drug 1 | | Contraindicated | Not contra, not max, & CAN incr dose | Not contra, not max, & can't incr dose controllable | Not contra, not max, & can't incr dose uncontrollable | Not contra & max dose |
| Contraindicated | 1 | 2 | 3 | 4 | 5 |
| Not contra, not max, & CAN incr dose | 2 | 6 | 8 | 9 | 12 |
| Not contra, not max, & can't incr dose controllable | 3 | 8 | 7 | 10 | 13 |
| Not contra, not max, & can't incr dose uncontrollable | 4 | 9 | 10 | 11 | 14 |
| Not contra & max dose | 5 | 12 | 13 | 14 | 15 |

### Possible Actions

* If both drugs have absolute contraindications substitute for both drugs with first line and second line therapies, that is, recommended stopping the drugs that have absolute contraindications and recommend starting the other encoded drugs listed in Section 3.4. (Case 1)
  + if no drug can be recommended because of absolute contraindications, then we will issue a message saying so and provide a link to other DM drugs.
* If one drug has an absolute contraindication and the other does not, then substitute the drug with the absolute contraindication, as described above. If the second drug does not have an absolute contraindication, then:
  + If the second drug is not at the maximum dose and the dose can be increased, then increase dose of second drug (Case 2)
  + If the second drug is not at the maximum dose but the drug dose cannot be increased because of a “do not intensify controllable criteria,” then the second drug appears as a therapeutic option with a blocked message and the contraindicated drug is substituted (Case 3)
  + If the second drug is not at the maximum dose but the drug dose cannot be increased because of a “do not intensify uncontrollable criteria,” then there are no recommendations for the second drug; only the drug with an absolute contraindication is substituted (Case 4)
  + If the second drug is at maximum dose, then there are no recommendations for the second drug; only the drug with an absolute contraindication is substituted (Case 5)
* If both drugs do not have an absolute contraindication, then:
  + If both drugs are not at the maximum dose, and both drugs can have their dosages increased, then there will be two therapeutic options: increase drug 1; increase drug 2. (clinically, we expect only one of the two drugs will actually have their dosage increased) (Case 6)
  + If both drugs are not at the maximum dose, and:
    - If both drugs cannot be increased because of a “do not intensify controllable criteria,” then both drugs will appear as therapeutic options with blocked messages (Case 7)
    - If one can be increased and the other cannot be increased because of a “do not intensify controllable criteria,” then both drugs will appear as therapeutic options; the drug that can have its dosage increased will appear with an increase dose therapeutic option; the drug that has the “do not intensify controllable criteria” will appear with a blocked message (Case 8)
    - If one drug can have its dosage increased and the other cannot because of a “do not intensify uncontrollable criteria,” increase the dose of the drug that can have its dosage increased; for the drug whose dose cannot be increased because of the uncontrollable criteria, there will not be a recommendation to add a new drug (Case 9)
    - If one drug cannot have its dosage increased because of a “do not intensify controllable criteria,” and the other cannot because of a “do not intensify uncontrollable criteria,” then the drug with the controllable criteria will appear as a therapeutic option with a blocked message; for the drug whose dose cannot be increased because of the uncontrollable criteria, there will not be a recommendation to add a new drug (Case 10)
    - If both drugs cannot have their dosage increased because of a “do not intensify uncontrollable criteria,” then add a drug (Case 11)
  + If one drug is at its maximum dose and the other is not, and:
    - If the drug with dosage not at maximum dose can have its dosage increased, then increase the dose of the drug; for the drug at maximum dose, there will not be a recommendation to add a new drug (Case 12)
    - If the drug with dosage not at maximum dose can have its dosage increased, but is blocked because of a “do not intensify controllable criteria,” then this drug will appear as a therapeutic option with a blocked message; for the drug at maximum dose, there will not be a recommendation to add a new drug (Case 13)
    - If the drug with dosage not at maximum dose can have its dosage increased, but is blocked because of a “do not intensify uncontrollable criteria,” then add a new drug (Case 14)
  + If both drugs are at their maximum dose, then add a new drug (Case 15)

Whenever a third drug is added, there is a message to consider a referral to an endocrinologist.

### Actions in the presence of bad drug partner

Note: the first two actions below are the same as those two described in the one drug scenario):

* + As mentioned [Section 3.0](#_Drugs_Therapies), there will be no drug recommendations if the patient has active prescriptions of two drugs that are normally not taken together (“bad drug partners”), one of which is a DM medications and the other is not, and the DM medication is not contraindicated. Instead, there will be a Drug-related message stating that the patient has active prescriptions for two drugs that are not normally taken together. Specific, and only example: presence of pioglitazone and gemfibrozil:

“Pt has Rx for gemfibrozil and TZD which is unsafe.”

* + If one of bad drug partners is a DM medication, and the other is not, and the DM medication *is* contraindicated, then there will be a substitution for the DM medication. (Specific example: presence of pioglitazone contraindicated and gemfibrozil).
  + If the bad drug partners are from the same DM medication class and are not contraindicated, there will be a message to stop one. In addition,
    - If one or both of the drugs are not at maximum dose, and its dose can be increased, we will recommend increasing dose (or blocked increase dose)
    - If one of the drugs is not at maximum dose, but it’s dose cannot be increased because of a “do not intensify uncontrollable” criteria, then we will recommend adding a drug
  + If the bad drug partners are from the same DM medication class and are contraindicated, we will recommend substituting both drugs

# Additional Messages

As described previously, “Collateral messages” appear next to the drug recommendation. There are also other messages that do not appear next to a therapeutic option. Some of these messages are related to particular drugs and, again, were described previously.

These messages described below are one of 5 Message Types:

* + - Out of scope
    - No drug recommendation
    - Primary recommendation
    - Drug-related
    - General info

The use of different message types is, in part, to determine where the messages is displayed on the GUI (when they are not Collateral messages).

Patients who are out of scope, receive Out of scope messages and no drug recommendations. Patients who are not out of scope, who also do not receive drug recommendations, receive a “No Drug recommendation” message. Patients with drug recommendations can receive messages that are Primary recommendation and Drug-related messages; both high priority messages. The separation into these different types is to enable the aggregation of drug-related messages together. Patients can also receive General info messages that are of lower priority.

Note that there are Collateral messages that have message type=General info. While Collateral messages and the messages described below are of the same Message type, they are displayed in different areas on the GUI.

We list below, Out of scope messages, No Drug recommendation messages, Primary recommendations, Drug-related messages, and General info messages, in that order. We have also included, for completeness, a few other messages that were described previously.

* Out of scope message, when patient has active prescription of insulin

“Management of insulin is beyond scope of this system.”

* Out of scope message, when patient has an active prescription for a non-encoded drug.

“Pt has Rx for ?Not\_Encoded\_DM\_drug that we have not evaluated and cannot give recommendations. Please consult <link to Appendix B of the VA 2017 DM Guidelines > for recommendations.”

Where ?Not\_Encoded\_DM\_drug is the name of the non-encoded drug.

* Out of scope message, when patient is on 3 or more encoded drugs

“Pt has Rx for 3+ DM drugs: ?Encoded\_DM\_drug. Consider referral to DM care team.”

* No Drug recommendation message, when patient is missing an HbA1c OR his/her HbA1c is older than 1 year

“Order HbA1C as it is old or missing.”

* No Drug recommendation message, when patient is at goal

“HbA1c <=9, meets goal. Congratulations!”

* No Drug recommendation message, when patient has active prescriptions of both gemfibrozil and TZD

“Pt has Rx for gemfibrozil and TZD which is unsafe.”

* Primary recommendation, for women of child bearing ages (18-50) (described previously)

“Warning: These recommendations do not apply to women who are pregnant.”

* Primary recommendation, when patient has Dx of both DM1 and DM2 (described previously)

“Pt has Dx of both type 1 and type 2 DM. If pt truly has type 1 DM, these recommendations DO NOT APPLY.”

* Primary recommendation when patient does not have Dx of DM2 but does have Rx for DM medications

“Pt has Rx for DM med but no DM Dx. Will assume Dx of DM2.”

* Primary recommendation, if a patient’s Medication Possession Ration (MPR) is below 90%:

?drugName (MPR= ?mpr %). Discuss with pt.

Where ?drugName is a variable containing the drug name and ?mpr is the actual MPR value. For a definition of the MPR, please see Section 3.3 Medication Possession Ratio.

* Primary recommendation, if the patient has an Rx of bromocriptine or colesevelam

“Warning: bromocriptine and colesevelam have hypoglycemic properties.”

* Primary recommendation, if there are multiple prescriptions for the same drug:

“There are multiple Rxs for ?dup\_GL\_drug . Doses summed.”

Where ?dup\_GL\_drug is a variable containing the name of the drug where there is more than one active prescription.

* Primary recommendation, if bicarbonate<24

“ALERT: bicarbonate level low: ?value (?date)”

* Drug-related message, if encoded drug is above the maximum dose cutoff:

“ ?drugName dose (?dailyDose) greater than max dose.”

where $drug\_name is a variable containing the name of the drug and ?dailyDose is the dose. For a list of dose cutoffs, see Appendix H: Medication Cutoff Doses.

* Drug-related message, when we cannot recommend any first or second line drugs:

“Cannot recommend metformin, glipizide, pioglitazone, saxagliptin or, if CVD present, empaglifozin. Please consider other drugs from Appendix B of the VA 2017 DM Guidelines.”

* General info messages, for all patients

“If pt has severe hyperglycemia or excessive symptoms, consider starting insulin.”

“Strongly recommend shared decision making process, where pt, family and provider agree to plan of care and treatment. Info available . Additional information can be found <link VA/DoD Guidelines pages 23-24>.”

“Refer to <link VA/DoD Guidelines pages page=35" >Table 2 from VA 2017 DM Guidelines to determine HbA1c target.”

“Lifestyle changes to control DM. Info available <link VA/DoD Guidelines>.”

# ICD-9 and ICD-10 Codes for DM-2

## ICD-9

|  |  |  |
| --- | --- | --- |
| **ICD-9** | **KBName** | **Description** |
| 249.40 | DM-Type2 | SECONDARY DIABETES MELLITUS WITH RENAL MANIFESTATIONS, NOT STATED AS UNCONTROLLED, OR UNSPECIFIED |
| 250.00 | DM-Type2 | DIABETES MELLITUS WITHOUT MENTION OF COMPLICATION, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.02 | DM-Type2 | DIABETES MELLITUS WITHOUT MENTION OF COMPLICATION, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.10 | DM-Type2 | DIABETES WITH KETOACIDOSIS, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.12 | DM-Type2 | DIABETES WITH KETOACIDOSIS, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.20 | DM-Type2 | DIABETES WITH HYPEROSMOLARITY, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.22 | DM-Type2 | DIABETES WITH HYPEROSMOLARITY, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.30 | DM-Type2 | DIABETES WITH OTHER COMA, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.32 | DM-Type2 | DIABETES WITH OTHER COMA, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.40 | DM-Type2 | DIABETES WITH RENAL MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.42 | DM-Type2 | DIABETES WITH RENAL MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.50 | DM-Type2 | DIABETES WITH OPHTHALMIC MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.52 | DM-Type2 | DIABETES WITH OPHTHALMIC MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.60 | DM-Type2 | DIABETES WITH NEUROLOGICAL MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.62 | DM-Type2 | DIABETES WITH NEUROLOGICAL MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.70 | DM-Type2 | DIABETES WITH PERIPHERAL CIRCULATORY DISORDERS, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.72 | DM-Type2 | DIABETES WITH PERIPHERAL CIRCULATORY DISORDERS, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.80 | DM-Type2 | DIABETES WITH OTHER SPECIFIED MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.82 | DM-Type2 | DIABETES WITH OTHER SPECIFIED MANIFESTATIONS, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |
| 250.90 | DM-Type2 | DIABETES WITH UNSPECIFIED COMPLICATION, TYPE II OR UNSPECIFIED TYPE, NOT STATED AS UNCONTROLLED |
| 250.92 | DM-Type2 | DIABETES WITH UNSPECIFIED COMPLICATION, TYPE II OR UNSPECIFIED TYPE, UNCONTROLLED |

## ICD-10

|  |  |  |
| --- | --- | --- |
| DM-Type2 | E11.00 | TYPE 2 DIABETES MELLITUS WITH HYPEROSMOLARITY WITHOUT NONKETOTIC HYPERGLYCEMIC-HYPEROSMOLAR COMA (NKHHC) |
| DM-Type2 | E11.01 | TYPE 2 DIABETES MELLITUS WITH HYPEROSMOLARITY WITH COMA |
| DM-Type2 | E11.21 | TYPE 2 DIABETES MELLITUS WITH DIABETIC NEPHROPATHY |
| DM-Type2 | E11.22 | TYPE 2 DIABETES MELLITUS WITH DIABETIC CHRONIC KIDNEY DISEASE |
| DM-Type2 | E11.29 | TYPE 2 DIABETES MELLITUS WITH OTHER DIABETIC KIDNEY COMPLICATION |
| DM-Type2 | E11.311 | TYPE 2 DIABETES MELLITUS WITH UNSPECIFIED DIABETIC RETINOPATHY WITH MACULAR EDEMA |
| DM-Type2 | E11.319 | TYPE 2 DIABETES MELLITUS WITH UNSPECIFIED DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA |
| DM-Type2 | E11.321 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA |
| DM-Type2 | E11.3211 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3212 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3213 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3219 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.329 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA |
| DM-Type2 | E11.3291 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3292 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3293 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3299 | TYPE 2 DIABETES MELLITUS WITH MILD NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.331 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA |
| DM-Type2 | E11.3311 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3312 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3313 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3319 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.339 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA |
| DM-Type2 | E11.3391 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3392 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3393 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3399 | TYPE 2 DIABETES MELLITUS WITH MODERATE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.341 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA |
| DM-Type2 | E11.3411 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3412 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3413 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3419 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.349 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA |
| DM-Type2 | E11.3491 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3492 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3493 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3499 | TYPE 2 DIABETES MELLITUS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.351 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA |
| DM-Type2 | E11.3511 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3512 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3513 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3519 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.3521 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT INVOLVING THE MACULA, RIGHT EYE |
| DM-Type2 | E11.3522 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT INVOLVING THE MACULA, LEFT EYE |
| DM-Type2 | E11.3523 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT INVOLVING THE MACULA, BILATERAL |
| DM-Type2 | E11.3529 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT INVOLVING THE MACULA, UNSPECIFIED EYE |
| DM-Type2 | E11.3531 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT NOT INVOLVING THE MACULA, RIGHT EYE |
| DM-Type2 | E11.3532 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT NOT INVOLVING THE MACULA, LEFT EYE |
| DM-Type2 | E11.3533 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT NOT INVOLVING THE MACULA, BILATERAL |
| DM-Type2 | E11.3539 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH TRACTION RETINAL DETACHMENT NOT INVOLVING THE MACULA, UNSPECIFIED EYE |
| DM-Type2 | E11.3541 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH COMBINED TRACTION RETINAL DETACHMENT AND RHEGMATOGENOUS RETINAL DETACHMENT, RIGHT EYE |
| DM-Type2 | E11.3542 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH COMBINED TRACTION RETINAL DETACHMENT AND RHEGMATOGENOUS RETINAL DETACHMENT, LEFT EYE |
| DM-Type2 | E11.3543 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH COMBINED TRACTION RETINAL DETACHMENT AND RHEGMATOGENOUS RETINAL DETACHMENT, BILATERAL |
| DM-Type2 | E11.3549 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITH COMBINED TRACTION RETINAL DETACHMENT AND RHEGMATOGENOUS RETINAL DETACHMENT, UNSPECIFIED EYE |
| DM-Type2 | E11.3551 | TYPE 2 DIABETES MELLITUS WITH STABLE PROLIFERATIVE DIABETIC RETINOPATHY, RIGHT EYE |
| DM-Type2 | E11.3552 | TYPE 2 DIABETES MELLITUS WITH STABLE PROLIFERATIVE DIABETIC RETINOPATHY, LEFT EYE |
| DM-Type2 | E11.3553 | TYPE 2 DIABETES MELLITUS WITH STABLE PROLIFERATIVE DIABETIC RETINOPATHY, BILATERAL |
| DM-Type2 | E11.3559 | TYPE 2 DIABETES MELLITUS WITH STABLE PROLIFERATIVE DIABETIC RETINOPATHY, UNSPECIFIED EYE |
| DM-Type2 | E11.359 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA |
| DM-Type2 | E11.3591 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, RIGHT EYE |
| DM-Type2 | E11.3592 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, LEFT EYE |
| DM-Type2 | E11.3593 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, BILATERAL |
| DM-Type2 | E11.3599 | TYPE 2 DIABETES MELLITUS WITH PROLIFERATIVE DIABETIC RETINOPATHY WITHOUT MACULAR EDEMA, UNSPECIFIED EYE |
| DM-Type2 | E11.36 | TYPE 2 DIABETES MELLITUS WITH DIABETIC CATARACT |
| DM-Type2 | E11.37X1 | TYPE 2 DIABETES MELLITUS WITH DIABETIC MACULAR EDEMA, RESOLVED FOLLOWING TREATMENT, RIGHT EYE |
| DM-Type2 | E11.37X2 | TYPE 2 DIABETES MELLITUS WITH DIABETIC MACULAR EDEMA, RESOLVED FOLLOWING TREATMENT, LEFT EYE |
| DM-Type2 | E11.37X3 | TYPE 2 DIABETES MELLITUS WITH DIABETIC MACULAR EDEMA, RESOLVED FOLLOWING TREATMENT, BILATERAL |
| DM-Type2 | E11.37X9 | TYPE 2 DIABETES MELLITUS WITH DIABETIC MACULAR EDEMA, RESOLVED FOLLOWING TREATMENT, UNSPECIFIED EYE |
| DM-Type2 | E11.39 | TYPE 2 DIABETES MELLITUS WITH OTHER DIABETIC OPHTHALMIC COMPLICATION |
| DM-Type2 | E11.40 | TYPE 2 DIABETES MELLITUS WITH DIABETIC NEUROPATHY, UNSPECIFIED |
| DM-Type2 | E11.41 | TYPE 2 DIABETES MELLITUS WITH DIABETIC MONONEUROPATHY |
| DM-Type2 | E11.42 | TYPE 2 DIABETES MELLITUS WITH DIABETIC POLYNEUROPATHY |
| DM-Type2 | E11.43 | TYPE 2 DIABETES MELLITUS WITH DIABETIC AUTONOMIC (POLY)NEUROPATHY |
| DM-Type2 | E11.44 | TYPE 2 DIABETES MELLITUS WITH DIABETIC AMYOTROPHY |
| DM-Type2 | E11.49 | TYPE 2 DIABETES MELLITUS WITH OTHER DIABETIC NEUROLOGICAL COMPLICATION |
| DM-Type2 | E11.51 | TYPE 2 DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITHOUT GANGRENE |
| DM-Type2 | E11.52 | TYPE 2 DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITH GANGRENE |
| DM-Type2 | E11.59 | TYPE 2 DIABETES MELLITUS WITH OTHER CIRCULATORY COMPLICATIONS |
| DM-Type2 | E11.610 | TYPE 2 DIABETES MELLITUS WITH DIABETIC NEUROPATHIC ARTHROPATHY |
| DM-Type2 | E11.618 | TYPE 2 DIABETES MELLITUS WITH OTHER DIABETIC ARTHROPATHY |
| DM-Type2 | E11.620 | TYPE 2 DIABETES MELLITUS WITH DIABETIC DERMATITIS |
| DM-Type2 | E11.621 | TYPE 2 DIABETES MELLITUS WITH FOOT ULCER |
| DM-Type2 | E11.622 | TYPE 2 DIABETES MELLITUS WITH OTHER SKIN ULCER |
| DM-Type2 | E11.628 | TYPE 2 DIABETES MELLITUS WITH OTHER SKIN COMPLICATIONS |
| DM-Type2 | E11.630 | TYPE 2 DIABETES MELLITUS WITH PERIODONTAL DISEASE |
| DM-Type2 | E11.638 | TYPE 2 DIABETES MELLITUS WITH OTHER ORAL COMPLICATIONS |
| DM-Type2 | E11.641 | TYPE 2 DIABETES MELLITUS WITH HYPOGLYCEMIA WITH COMA |
| DM-Type2 | E11.649 | TYPE 2 DIABETES MELLITUS WITH HYPOGLYCEMIA WITHOUT COMA |
| DM-Type2 | E11.65 | TYPE 2 DIABETES MELLITUS WITH HYPERGLYCEMIA |
| DM-Type2 | E11.69 | TYPE 2 DIABETES MELLITUS WITH OTHER SPECIFIED COMPLICATION |
| DM-Type2 | E11.8 | TYPE 2 DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS |
| DM-Type2 | E11.9 | TYPE 2 DIABETES MELLITUS WITHOUT COMPLICATIONS |

# Glycemic Control Medications

albiglutide

acarbose

acetohexamide

alogliptin

canagliflozin

chlorpropamide

dapagliflozin

dulaglutide

empagliflozin

exenatide

glibenclamide (aka glyburide)

glimepiride

glipizide

glipizide\_xl

glyburide

insulin

linagliptin

liraglutide

lixisenatide

metformin

metformin\_er

miglitol

nateglinide

pioglitazone

pramlintide

repaglinide

rosiglitazone

saxagliptin

sitagliptin

tolazamide

tolbutamide

vildagliptin

# List of Encoded Drugs

metformin (biguanide)

metformin\_er (biguanide)

glipizide (sulfonylurea)

glipizide xl (sulfonylurea)

empagliflozin (SGLT2 inhibitor)

pioglitazone (thiazolidinedione)

saxagliptin (DPP-4 inhibitor)

# List of Non-encoded Drugs

albiglutide

acarbose

acetohexamide

alogliptin

canagliflozin

chlorpropamide

dapagliflozin

dulaglutide

exenatide

glibenclamide (aka glyburide)

glimepiride

glyburide

insulin

linagliptin

liraglutide

lixisenatide

miglitol

nateglinide

pramlintide

repaglinide

rosiglitazone

sitagliptin

tolazamide

tolbutamide

vildagliptin

# List of First-generation Sulfonylureas

These drugs are first generation sulfonylureas that could share cross-reactivity with glipizide. If an ADR exists to these drugs, then the ADR will be displayed.

acetohexamide

chlorpropamide

tolazamide

tolbutamide

# List of Sulfa Drugs

acetazolamide

bendroflumethiazide

benzthiazide

bumetanide

celecoxib

chlorthalidone

cyclothiazide

furosemide

hydrochlorothiazide

hydroflumethiazide

indapamide

methazolamide

methyclothiazide

metolazone

polythiazide

probenecid

quinethazone

sulfacetamide (lotion or drops)

sulfadiazine

sulfamethoxazole

sulfasalazine

sumatriptan

trichlormethiazide

# CVD Codes for use with Empaglifozin

CVD ICD-9 and ICD-10 codes were identified based upon references (6), (7), and (8).

## ICD-9

|  |  |  |
| --- | --- | --- |
| CVD\_DM | V45.81 | POSTSURGICAL AORTOCORONARY BYPASS STATUS |
| CVD\_DM | 249.7 | SECONDARY DIABETES MELLITUS WITH PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 249.71 | SECONDARY DIABETES MELLITUS WITH PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 250.7 | DIABETES WITH PERIPHERAL CIRCULATORY DISORDERS TYPE II (NIDDM) (ADULT ONSET OR UNSPECIFIED TYPE) |
| CVD\_DM | 250.71 | DIABETES WITH PERIPHERAL CIRCULATORY DISORDERS TYPE I (IDDM) (JUVENILE TYPE) |
| CVD\_DM | 250.72 | DIABETES W/ PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 250.73 | DIABETES W/ PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 410 | ACUTE MYOCARDIAL INFARCTION OF ANTEROLATERAL WALL |
| CVD\_DM | 410.01 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.02 | ACUTE MYOCRADIAL INFARCTION |
| CVD\_DM | 410.1 | ACUTE MYOCARDIAL INFARCTION OF OTHER ANTERIOR WALL |
| CVD\_DM | 410.11 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.12 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.2 | ACUTE MYOCARDIAL INFARCTION OF INFEROLATERAL WALL |
| CVD\_DM | 410.21 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.22 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.3 | ACUTE MYOCARDIAL INFARCTION OF INFEROPOSTERIOR WALL |
| CVD\_DM | 410.31 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.32 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.4 | ACUTE MYOCARDIAL INFARCTION OF OTHER INFERIOR WALL |
| CVD\_DM | 410.41 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.42 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.5 | ACUTE MYOCARDIAL INFARCTION OF OTHER LATERAL WALL |
| CVD\_DM | 410.51 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.52 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.6 | TRUE POSTERIOR WALL INFARCTION |
| CVD\_DM | 410.61 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.62 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.7 | SUBENDOCARDIAL INFARCTION |
| CVD\_DM | 410.71 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.72 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.8 | ACUTE MYOCARDIAL INFARCTION OF OTHER SPECIFIED SITES |
| CVD\_DM | 410.81 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.82 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.9 | ACUTE MYOCARDIAL INFARCTION OF UNSPECIFIED SITE |
| CVD\_DM | 410.91 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.92 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 411 | POSTMYOCARDIAL INFARCTION SYNDROME |
| CVD\_DM | 411.1 | INTERMEDIATE CORONARY SYNDROME |
| CVD\_DM | 411.8 | OTHER ACUTE AND SUBACUTE FORMS OF ISCHEMIC HEART DISEASE |
| CVD\_DM | 411.81 | ACUTE CORONARY OCCLUSION WITHOUT MYOCARDIAL INFARCTION |
| CVD\_DM | 411.89 | OTHER ACUTE AND SUBACUTE FORMS OF ISCHEMIC HEART DISEASE |
| CVD\_DM | 412 | OLD MYOCARDIAL INFARCTION |
| CVD\_DM | 413 | ANGINA DECUBITUS |
| CVD\_DM | 413.1 | PRINZMETAL ANGINA |
| CVD\_DM | 413.9 | OTHER AND UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | 414 | CORONARY ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF VESSEL |
| CVD\_DM | 414.01 | CORONARY ATHEROSCLEROSIS OF NATIVE CORONARY VESSEL |
| CVD\_DM | 414.02 | CORONARY ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT |
| CVD\_DM | 414.03 | CORONARY ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT |
| CVD\_DM | 414.04 | CORONARY ATHEROSCLEROSIS OF ARTERY BYPASS GRAFT |
| CVD\_DM | 414.05 | CORONARY ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT |
| CVD\_DM | 414.06 | CORONARY ATHEROSCLEROSIS OF CORONARY ARTERY OFTRANSPLANTED HEART |
| CVD\_DM | 414.07 | CORONARY ATHEROSCLEROSIS |
| CVD\_DM | 414.1 | ANEURYSM OF HEART |
| CVD\_DM | 414.11 | ANEURYSM OF CORONARY VESSELS |
| CVD\_DM | 414.12 | DISSECTION OF CORONARY ARTERY |
| CVD\_DM | 414.19 | OTHER ANEURYSM OF HEART |
| CVD\_DM | 414.2 | CHRONIC TOTAL OCCLUSION OF CORONARY ARTERY |
| CVD\_DM | 414.3 | CORONARY ATHEROSCLEROSIS DUE TO LIPID RICH PLAQUE |
| CVD\_DM | 414.4 | CORONARY ATHEROSCLEROSIS DUE TO CALCIFIED CORONARY LESION |
| CVD\_DM | 414.8 | OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE |
| CVD\_DM | 414.9 | CHRONIC ISCHEMIC HEART DISEASE |
| CVD\_DM | 432.9 | UNSPECIFIED INTRACRANIAL HEMORRHAGE |
| CVD\_DM | 433 | OCCLUSION AND STENOSIS OF BASILAR ARTERY |
| CVD\_DM | 433.01 | OCCLUSION & STENOSIS OF BASILAR ARTERY |
| CVD\_DM | 433.1 | OCCLUSION AND STENOSIS OF CAROTID ARTERY |
| CVD\_DM | 433.11 | OCCLUSION & STENOSIS OF CAROTID ARTERY |
| CVD\_DM | 433.2 | OCCLUSION AND STENOSIS OF VERTEBRAL ARTERY |
| CVD\_DM | 433.21 | OCCLUSION & STENOSIS OF VERTEBRAL ARTERY |
| CVD\_DM | 433.3 | OCCLUSION AND STENOSIS OF MULTIPLE AND BILATERAL PRECEREBRAL ARTERIES |
| CVD\_DM | 433.31 | OCCLUSION& STENOSIS OF MULTIPLE & BILATERAL ARTERIES |
| CVD\_DM | 433.8 | OCCLUSION AND STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | 433.81 | OCCLUSION & STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | 433.9 | OCCLUSION AND STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | 433.91 | OCCLUSION & STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY W/ CEREBRAL INFARCTION |
| CVD\_DM | 434 | CEREBRAL THROMBOSIS W/O MENTION OF CEREBRAL INFARCTION |
| CVD\_DM | 434.01 | CEREBRAL THROMBOSIS W/ CEREBRAL INFARCTION |
| CVD\_DM | 434.9 | CEREBRAL ARTERY OCCLUSION |
| CVD\_DM | 434.91 | CEREBRAL ARTERY OCCLUSION |
| CVD\_DM | 435 | BASILAR ARTERY SYNDROME |
| CVD\_DM | 435.1 | VERTEBRAL ARTERY SYNDROME |
| CVD\_DM | 435.2 | SUBCLAVIAN STEAL SYNDROME |
| CVD\_DM | 435.3 | VERTEBROBASILAR ARTERY SYNDROME |
| CVD\_DM | 435.8 | OTHER SPECIFIED TRANSIENT CEREBRAL ISCHEMIAS |
| CVD\_DM | 435.9 | UNSPECIFIED TRANSIENT CEREBRAL ISCHEMIA |
| CVD\_DM | 436 | ACUTE |
| CVD\_DM | 437 | CEREBRAL ATHEROSCLEROSIS |
| CVD\_DM | 437.1 | OTHER GENERALIZED ISCHEMIC CEREBROVASCULAR DISEASE |
| CVD\_DM | 437.89 | OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | 437.9 | UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | 438 | LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.1 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.11 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.12 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.13 | LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.14 | LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.19 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.2 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.21 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.22 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.3 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.31 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.32 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.4 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.41 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.42 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.5 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.51 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.52 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.81 | OTHER LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.82 | OTHER LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.89 | OTHER LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.9 | UNSPECIFIED LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 440 | ATHEROSCLEROSIS OF AORTA |
| CVD\_DM | 440.1 | ATHEROSCLEROSIS OF RENAL ARTERY |
| CVD\_DM | 440.2 | ATHEROSCLEROSIS OF ARTERIES OF THE EXTREMITIES |
| CVD\_DM | 440.21 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES W/INTERMITTENT CLAUDICATION |
| CVD\_DM | 440.22 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH REST PAIN |
| CVD\_DM | 440.23 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES W/ ULCERATION |
| CVD\_DM | 440.24 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES W/ GANGRENE |
| CVD\_DM | 440.29 | OTHER ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES |
| CVD\_DM | 440.3 | ATHEROSCLEROSIS OF UNSPECIFIED BYPASS GRAFT OF THE EXTREMITIES |
| CVD\_DM | 440.31 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT OF THE EXTREMITIES |
| CVD\_DM | 440.32 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT OF THE EXTREMITIES |
| CVD\_DM | 440.4 | CHRONIC TOTAL OCCLUSION OF ARTERY OF THE EXTREMITIES |
| CVD\_DM | 440.8 | ATHEROSCLEROSIS OF OTHER SPECIFIED ARTERIES |
| CVD\_DM | 440.9 | GENERALIZED AND UNSPECIFIED ATHEROSCLEROSIS |
| CVD\_DM | 249.7 | SECONDARY DIABETES MELLITUS WITH PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 249.71 | SECONDARY DIABETES MELLITUS WITH PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 250.7 | DIABETES WITH PERIPHERAL CIRCULATORY DISORDERS TYPE II (NIDDM) (ADULT ONSET OR UNSPECIFIED TYPE) |
| CVD\_DM | 250.71 | DIABETES WITH PERIPHERAL CIRCULATORY DISORDERS TYPE I (IDDM) (JUVENILE TYPE) |
| CVD\_DM | 250.72 | DIABETES W/ PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 250.73 | DIABETES W/ PERIPHERAL CIRCULATORY DISORDERS |
| CVD\_DM | 410 | ACUTE MYOCARDIAL INFARCTION OF ANTEROLATERAL WALL |
| CVD\_DM | 410.01 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.02 | ACUTE MYOCRADIAL INFARCTION |
| CVD\_DM | 410.1 | ACUTE MYOCARDIAL INFARCTION OF OTHER ANTERIOR WALL |
| CVD\_DM | 410.11 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.12 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.2 | ACUTE MYOCARDIAL INFARCTION OF INFEROLATERAL WALL |
| CVD\_DM | 410.21 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.22 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.3 | ACUTE MYOCARDIAL INFARCTION OF INFEROPOSTERIOR WALL |
| CVD\_DM | 410.31 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.32 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.4 | ACUTE MYOCARDIAL INFARCTION OF OTHER INFERIOR WALL |
| CVD\_DM | 410.41 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.42 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.5 | ACUTE MYOCARDIAL INFARCTION OF OTHER LATERAL WALL |
| CVD\_DM | 410.51 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.52 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.6 | TRUE POSTERIOR WALL INFARCTION |
| CVD\_DM | 410.61 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.62 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.7 | SUBENDOCARDIAL INFARCTION |
| CVD\_DM | 410.71 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.72 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.8 | ACUTE MYOCARDIAL INFARCTION OF OTHER SPECIFIED SITES |
| CVD\_DM | 410.81 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.82 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.9 | ACUTE MYOCARDIAL INFARCTION OF UNSPECIFIED SITE |
| CVD\_DM | 410.91 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 410.92 | ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | 411 | POSTMYOCARDIAL INFARCTION SYNDROME |
| CVD\_DM | 411.1 | INTERMEDIATE CORONARY SYNDROME |
| CVD\_DM | 411.8 | OTHER ACUTE AND SUBACUTE FORMS OF ISCHEMIC HEART DISEASE |
| CVD\_DM | 411.81 | ACUTE CORONARY OCCLUSION WITHOUT MYOCARDIAL INFARCTION |
| CVD\_DM | 411.89 | OTHER ACUTE AND SUBACUTE FORMS OF ISCHEMIC HEART DISEASE |
| CVD\_DM | 412 | OLD MYOCARDIAL INFARCTION |
| CVD\_DM | 413 | ANGINA DECUBITUS |
| CVD\_DM | 413.1 | PRINZMETAL ANGINA |
| CVD\_DM | 413.9 | OTHER AND UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | 414 | CORONARY ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF VESSEL |
| CVD\_DM | 414.01 | CORONARY ATHEROSCLEROSIS OF NATIVE CORONARY VESSEL |
| CVD\_DM | 414.02 | CORONARY ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT |
| CVD\_DM | 414.03 | CORONARY ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT |
| CVD\_DM | 414.04 | CORONARY ATHEROSCLEROSIS OF ARTERY BYPASS GRAFT |
| CVD\_DM | 414.05 | CORONARY ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT |
| CVD\_DM | 414.06 | CORONARY ATHEROSCLEROSIS OF CORONARY ARTERY OFTRANSPLANTED HEART |
| CVD\_DM | 414.07 | CORONARY ATHEROSCLEROSIS |
| CVD\_DM | 414.1 | ANEURYSM OF HEART |
| CVD\_DM | 414.11 | ANEURYSM OF CORONARY VESSELS |
| CVD\_DM | 414.12 | DISSECTION OF CORONARY ARTERY |
| CVD\_DM | 414.19 | OTHER ANEURYSM OF HEART |
| CVD\_DM | 414.2 | CHRONIC TOTAL OCCLUSION OF CORONARY ARTERY |
| CVD\_DM | 414.3 | CORONARY ATHEROSCLEROSIS DUE TO LIPID RICH PLAQUE |
| CVD\_DM | 414.4 | CORONARY ATHEROSCLEROSIS DUE TO CALCIFIED CORONARY LESION |
| CVD\_DM | 414.8 | OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE |
| CVD\_DM | 414.9 | CHRONIC ISCHEMIC HEART DISEASE |
| CVD\_DM | 432.9 | UNSPECIFIED INTRACRANIAL HEMORRHAGE |
| CVD\_DM | 433 | OCCLUSION AND STENOSIS OF BASILAR ARTERY |
| CVD\_DM | 433.01 | OCCLUSION & STENOSIS OF BASILAR ARTERY |
| CVD\_DM | 433.1 | OCCLUSION AND STENOSIS OF CAROTID ARTERY |
| CVD\_DM | 433.11 | OCCLUSION & STENOSIS OF CAROTID ARTERY |
| CVD\_DM | 433.2 | OCCLUSION AND STENOSIS OF VERTEBRAL ARTERY |
| CVD\_DM | 433.21 | OCCLUSION & STENOSIS OF VERTEBRAL ARTERY |
| CVD\_DM | 433.3 | OCCLUSION AND STENOSIS OF MULTIPLE AND BILATERAL PRECEREBRAL ARTERIES |
| CVD\_DM | 433.31 | OCCLUSION& STENOSIS OF MULTIPLE & BILATERAL ARTERIES |
| CVD\_DM | 433.8 | OCCLUSION AND STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | 433.81 | OCCLUSION & STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | 433.9 | OCCLUSION AND STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | 433.91 | OCCLUSION & STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY W/ CEREBRAL INFARCTION |
| CVD\_DM | 434 | CEREBRAL THROMBOSIS W/O MENTION OF CEREBRAL INFARCTION |
| CVD\_DM | 434.01 | CEREBRAL THROMBOSIS W/ CEREBRAL INFARCTION |
| CVD\_DM | 434.9 | CEREBRAL ARTERY OCCLUSION |
| CVD\_DM | 434.91 | CEREBRAL ARTERY OCCLUSION |
| CVD\_DM | 435 | BASILAR ARTERY SYNDROME |
| CVD\_DM | 435.1 | VERTEBRAL ARTERY SYNDROME |
| CVD\_DM | 435.2 | SUBCLAVIAN STEAL SYNDROME |
| CVD\_DM | 435.3 | VERTEBROBASILAR ARTERY SYNDROME |
| CVD\_DM | 435.8 | OTHER SPECIFIED TRANSIENT CEREBRAL ISCHEMIAS |
| CVD\_DM | 435.9 | UNSPECIFIED TRANSIENT CEREBRAL ISCHEMIA |
| CVD\_DM | 436 | ACUTE |
| CVD\_DM | 437 | CEREBRAL ATHEROSCLEROSIS |
| CVD\_DM | 437.1 | OTHER GENERALIZED ISCHEMIC CEREBROVASCULAR DISEASE |
| CVD\_DM | 437.89 | OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | 437.9 | UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | 438 | LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.1 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.11 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.12 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.13 | LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.14 | LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.19 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.2 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.21 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.22 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.3 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.31 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.32 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.4 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.41 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.42 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.5 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.51 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.52 | LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.81 | OTHER LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.82 | OTHER LATE EFFECT OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.89 | OTHER LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 438.9 | UNSPECIFIED LATE EFFECTS OF CEREBROVASCULAR DISEASE |
| CVD\_DM | 440 | ATHEROSCLEROSIS OF AORTA |
| CVD\_DM | 440.1 | ATHEROSCLEROSIS OF RENAL ARTERY |
| CVD\_DM | 440.2 | ATHEROSCLEROSIS OF ARTERIES OF THE EXTREMITIES |
| CVD\_DM | 440.21 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES W/INTERMITTENT CLAUDICATION |
| CVD\_DM | 440.22 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH REST PAIN |
| CVD\_DM | 440.23 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES W/ ULCERATION |
| CVD\_DM | 440.24 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES W/ GANGRENE |
| CVD\_DM | 440.29 | OTHER ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES |
| CVD\_DM | 440.3 | ATHEROSCLEROSIS OF UNSPECIFIED BYPASS GRAFT OF THE EXTREMITIES |
| CVD\_DM | 440.31 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT OF THE EXTREMITIES |
| CVD\_DM | 440.32 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT OF THE EXTREMITIES |
| CVD\_DM | 440.4 | CHRONIC TOTAL OCCLUSION OF ARTERY OF THE EXTREMITIES |
| CVD\_DM | 440.8 | ATHEROSCLEROSIS OF OTHER SPECIFIED ARTERIES |
| CVD\_DM | 440.9 | GENERALIZED AND UNSPECIFIED ATHEROSCLEROSIS |
| CVD\_DM | V45.81 | POSTSURGICAL AORTOCORONARY BYPASS STATUS |
| CVD\_DM | V45.82 | PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY STATUS |
| CVD\_DM | 996.03 | MECHANICAL COMPLICATION DUE TO CORONARY BYPASS GRAFT |

## ICD-10

|  |  |  |
| --- | --- | --- |
| CVD\_DM | Z95.1 | PRESENCE OF AORTOCORONARY BYPASS GRAFT |
| CVD\_DM | E08.51 | DIABETES MELLITUS DUE TO UNDERLYING CONDITION WITH DIABETIC PERIPHERAL ANGIOPATHY WITHOUT GANGRENE |
| CVD\_DM | E08.52 | DIABETES MELLITUS DUE TO UNDERLYING CONDITION WITH DIABETIC PERIPHERAL ANGIOPATHY WITH GANGRENE |
| CVD\_DM | E09.51 | DRUG OR CHEMICAL INDUCED DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITHOUT GANGRENE |
| CVD\_DM | E09.52 | DRUG OR CHEMICAL INDUCED DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITH GANGRENE |
| CVD\_DM | E10.51 | TYPE 1 DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITHOUT GANGRENE |
| CVD\_DM | E10.52 | TYPE 1 DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITH GANGRENE |
| CVD\_DM | E11.51 | TYPE 2 DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITHOUT GANGRENE |
| CVD\_DM | E11.52 | TYPE 2 DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITH GANGRENE |
| CVD\_DM | E13.51 | OTHER SPECIFIED DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITHOUT GANGRENE |
| CVD\_DM | E13.52 | OTHER SPECIFIED DIABETES MELLITUS WITH DIABETIC PERIPHERAL ANGIOPATHY WITH GANGRENE |
| CVD\_DM | G45.0 | VERTEBRO-BASILAR ARTERY SYNDROME |
| CVD\_DM | G45.1 | CAROTID ARTERY SYNDROME (HEMISPHERIC) |
| CVD\_DM | G45.2 | MULTIPLE AND BILATERAL PRECEREBRAL ARTERY SYNDROMES |
| CVD\_DM | G45.3 | AMAUROSIS FUGAX |
| CVD\_DM | G45.4 | TRANSIENT GLOBAL AMNESIA |
| CVD\_DM | G45.8 | OTHER TRANSIENT CEREBRAL ISCHEMIC ATTACKS AND RELATED SYNDROMES |
| CVD\_DM | G45.9 | TRANSIENT CEREBRAL ISCHEMIC ATTACK, UNSPECIFIED |
| CVD\_DM | G46.0 | MIDDLE CEREBRAL ARTERY SYNDROME |
| CVD\_DM | G46.1 | ANTERIOR CEREBRAL ARTERY SYNDROME |
| CVD\_DM | G46.2 | POSTERIOR CEREBRAL ARTERY SYNDROME |
| CVD\_DM | G46.3 | BRAIN STEM STROKE SYNDROME |
| CVD\_DM | G46.4 | CEREBELLAR STROKE SYNDROME |
| CVD\_DM | G46.5 | PURE MOTOR LACUNAR SYNDROME |
| CVD\_DM | G46.6 | PURE SENSORY LACUNAR SYNDROME |
| CVD\_DM | G46.7 | OTHER LACUNAR SYNDROMES |
| CVD\_DM | G46.8 | OTHER VASCULAR SYNDROMES OF BRAIN IN CEREBROVASCULAR DISEASES |
| CVD\_DM | I20.0 | UNSTABLE ANGINA |
| CVD\_DM | I20.1 | ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I20.8 | OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I20.9 | ANGINA PECTORIS, UNSPECIFIED |
| CVD\_DM | I21.01 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING LEFT MAIN CORONARY ARTERY |
| CVD\_DM | I21.02 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING LEFT ANTERIOR DESCENDING CORONARY ARTERY |
| CVD\_DM | I21.09 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING OTHER CORONARY ARTERY OF ANTERIOR WALL |
| CVD\_DM | I21.09 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING OTHER CORONARY ARTERY OF ANTERIOR WALL |
| CVD\_DM | I21.11 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING RIGHT CORONARY ARTERY |
| CVD\_DM | I21.11 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING RIGHT CORONARY ARTERY |
| CVD\_DM | I21.19 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING OTHER CORONARY ARTERY OF INFERIOR WALL |
| CVD\_DM | I21.19 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING OTHER CORONARY ARTERY OF INFERIOR WALL |
| CVD\_DM | I21.21 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING LEFT CIRCUMFLEX CORONARY ARTERY |
| CVD\_DM | I21.29 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING OTHER SITES |
| CVD\_DM | I21.29 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION INVOLVING OTHER SITES |
| CVD\_DM | I21.3 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION OF UNSPECIFIED SITE |
| CVD\_DM | I21.3 | ST ELEVATION (STEMI) MYOCARDIAL INFARCTION OF UNSPECIFIED SITE |
| CVD\_DM | I21.4 | NON-ST ELEVATION (NSTEMI) MYOCARDIAL INFARCTION |
| CVD\_DM | I21.4 | NON-ST ELEVATION (NSTEMI) MYOCARDIAL INFARCTION |
| CVD\_DM | I22.0 | SUBSEQUENT ST ELEVATION (STEMI) MYOCARDIAL INFARCTION OF ANTERIOR WALL |
| CVD\_DM | I22.1 | SUBSEQUENT ST ELEVATION (STEMI) MYOCARDIAL INFARCTION OF INFERIOR WALL |
| CVD\_DM | I22.2 | SUBSEQUENT NON-ST ELEVATION (NSTEMI) MYOCARDIAL INFARCTION |
| CVD\_DM | I22.8 | SUBSEQUENT ST ELEVATION (STEMI) MYOCARDIAL INFARCTION OF OTHER SITES |
| CVD\_DM | I22.9 | SUBSEQUENT ST ELEVATION (STEMI) MYOCARDIAL INFARCTION OF UNSPECIFIED SITE |
| CVD\_DM | I23.0 | HEMOPERICARDIUM AS CURRENT COMPLICATION FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I23.1 | ATRIAL SEPTAL DEFECT AS CURRENT COMPLICATION FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I23.2 | VENTRICULAR SEPTAL DEFECT AS CURRENT COMPLICATION FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I23.3 | RUPTURE OF CARDIAC WALL WITHOUT HEMOPERICARDIUM AS CURRENT COMPLICATION FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I23.4 | RUPTURE OF CHORDAE TENDINEAE AS CURRENT COMPLICATION FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I23.5 | RUPTURE OF PAPILLARY MUSCLE AS CURRENT COMPLICATION FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I23.6 | THROMBOSIS OF ATRIUM, AURICULAR APPENDAGE, AND VENTRICLE AS CURRENT COMPLICATIONS FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I23.7 | POSTINFARCTION ANGINA |
| CVD\_DM | I23.8 | OTHER CURRENT COMPLICATIONS FOLLOWING ACUTE MYOCARDIAL INFARCTION |
| CVD\_DM | I24.0 | ACUTE CORONARY THROMBOSIS NOT RESULTING IN MYOCARDIAL INFARCTION |
| CVD\_DM | I24.1 | DRESSLER'S SYNDROME |
| CVD\_DM | I24.8 | OTHER FORMS OF ACUTE ISCHEMIC HEART DISEASE |
| CVD\_DM | I24.9 | ACUTE ISCHEMIC HEART DISEASE, UNSPECIFIED |
| CVD\_DM | I25.10 | ATHEROSCLEROTIC HEART DISEASE OF NATIVE CORONARY ARTERY WITHOUT ANGINA PECTORIS |
| CVD\_DM | I25.110 | ATHEROSCLEROTIC HEART DISEASE OF NATIVE CORONARY ARTERY WITH UNSTABLE ANGINA PECTORIS |
| CVD\_DM | I25.111 | ATHEROSCLEROTIC HEART DISEASE OF NATIVE CORONARY ARTERY WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.118 | ATHEROSCLEROTIC HEART DISEASE OF NATIVE CORONARY ARTERY WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.119 | ATHEROSCLEROTIC HEART DISEASE OF NATIVE CORONARY ARTERY WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.2 | OLD MYOCARDIAL INFARCTION |
| CVD\_DM | I25.3 | ANEURYSM OF HEART |
| CVD\_DM | I25.41 | CORONARY ARTERY ANEURYSM |
| CVD\_DM | I25.42 | CORONARY ARTERY DISSECTION |
| CVD\_DM | I25.5 | ISCHEMIC CARDIOMYOPATHY |
| CVD\_DM | I25.6 | SILENT MYOCARDIAL ISCHEMIA |
| CVD\_DM | I25.700 | ATHEROSCLEROSIS OF CORONARY ARTERY BYPASS GRAFT(S), UNSPECIFIED, WITH UNSTABLE ANGINA PECTORIS |
| CVD\_DM | I25.701 | ATHEROSCLEROSIS OF CORONARY ARTERY BYPASS GRAFT(S), UNSPECIFIED, WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.708 | ATHEROSCLEROSIS OF CORONARY ARTERY BYPASS GRAFT(S), UNSPECIFIED, WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.709 | ATHEROSCLEROSIS OF CORONARY ARTERY BYPASS GRAFT(S), UNSPECIFIED, WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.710 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN CORONARY ARTERY BYPASS GRAFT(S) WITH UNSTABLE ANGINA PECTORIS |
| CVD\_DM | I25.711 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN CORONARY ARTERY BYPASS GRAFT(S) WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.718 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN CORONARY ARTERY BYPASS GRAFT(S) WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.719 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN CORONARY ARTERY BYPASS GRAFT(S) WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.720 | ATHEROSCLEROSIS OF AUTOLOGOUS ARTERY CORONARY ARTERY BYPASS GRAFT(S) WITH UNSTABLE ANGINA PECTORIS |
| CVD\_DM | I25.721 | ATHEROSCLEROSIS OF AUTOLOGOUS ARTERY CORONARY ARTERY BYPASS GRAFT(S) WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.728 | ATHEROSCLEROSIS OF AUTOLOGOUS ARTERY CORONARY ARTERY BYPASS GRAFT(S) WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.729 | ATHEROSCLEROSIS OF AUTOLOGOUS ARTERY CORONARY ARTERY BYPASS GRAFT(S) WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.730 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL CORONARY ARTERY BYPASS GRAFT(S) WITH UNSTABLE ANGINA PECTORIS |
| CVD\_DM | I25.731 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL CORONARY ARTERY BYPASS GRAFT(S) WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.738 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL CORONARY ARTERY BYPASS GRAFT(S) WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.739 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL CORONARY ARTERY BYPASS GRAFT(S) WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.750 | ATHEROSCLEROSIS OF NATIVE CORONARY ARTERY OF TRANSPLANTED HEART WITH UNSTABLE ANGINA |
| CVD\_DM | I25.751 | ATHEROSCLEROSIS OF NATIVE CORONARY ARTERY OF TRANSPLANTED HEART WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.758 | ATHEROSCLEROSIS OF NATIVE CORONARY ARTERY OF TRANSPLANTED HEART WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.759 | ATHEROSCLEROSIS OF NATIVE CORONARY ARTERY OF TRANSPLANTED HEART WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.760 | ATHEROSCLEROSIS OF BYPASS GRAFT OF CORONARY ARTERY OF TRANSPLANTED HEART WITH UNSTABLE ANGINA |
| CVD\_DM | I25.761 | ATHEROSCLEROSIS OF BYPASS GRAFT OF CORONARY ARTERY OF TRANSPLANTED HEART WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.768 | ATHEROSCLEROSIS OF BYPASS GRAFT OF CORONARY ARTERY OF TRANSPLANTED HEART WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.769 | ATHEROSCLEROSIS OF BYPASS GRAFT OF CORONARY ARTERY OF TRANSPLANTED HEART WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.790 | ATHEROSCLEROSIS OF OTHER CORONARY ARTERY BYPASS GRAFT(S) WITH UNSTABLE ANGINA PECTORIS |
| CVD\_DM | I25.791 | ATHEROSCLEROSIS OF OTHER CORONARY ARTERY BYPASS GRAFT(S) WITH ANGINA PECTORIS WITH DOCUMENTED SPASM |
| CVD\_DM | I25.798 | ATHEROSCLEROSIS OF OTHER CORONARY ARTERY BYPASS GRAFT(S) WITH OTHER FORMS OF ANGINA PECTORIS |
| CVD\_DM | I25.799 | ATHEROSCLEROSIS OF OTHER CORONARY ARTERY BYPASS GRAFT(S) WITH UNSPECIFIED ANGINA PECTORIS |
| CVD\_DM | I25.810 | ATHEROSCLEROSIS OF CORONARY ARTERY BYPASS GRAFT(S) WITHOUT ANGINA PECTORIS |
| CVD\_DM | I25.811 | ATHEROSCLEROSIS OF NATIVE CORONARY ARTERY OF TRANSPLANTED HEART WITHOUT ANGINA PECTORIS |
| CVD\_DM | I25.812 | ATHEROSCLEROSIS OF BYPASS GRAFT OF CORONARY ARTERY OF TRANSPLANTED HEART WITHOUT ANGINA PECTORIS |
| CVD\_DM | I25.82 | CHRONIC TOTAL OCCLUSION OF CORONARY ARTERY |
| CVD\_DM | I25.83 | CORONARY ATHEROSCLEROSIS DUE TO LIPID RICH PLAQUE |
| CVD\_DM | I25.84 | CORONARY ATHEROSCLEROSIS DUE TO CALCIFIED CORONARY LESION |
| CVD\_DM | I25.89 | OTHER FORMS OF CHRONIC ISCHEMIC HEART DISEASE |
| CVD\_DM | I25.9 | CHRONIC ISCHEMIC HEART DISEASE, UNSPECIFIED |
| CVD\_DM | I60.00 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM UNSPECIFIED CAROTID SIPHON AND BIFURCATION |
| CVD\_DM | I60.01 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM RIGHT CAROTID SIPHON AND BIFURCATION |
| CVD\_DM | I60.02 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM LEFT CAROTID SIPHON AND BIFURCATION |
| CVD\_DM | I60.10 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM UNSPECIFIED MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I60.11 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM RIGHT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I60.12 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM LEFT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I60.2 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM ANTERIOR COMMUNICATING ARTERY |
| CVD\_DM | I60.20 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM UNSPECIFIED ANTERIOR COMMUNICATING ARTERY |
| CVD\_DM | I60.21 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM RIGHT ANTERIOR COMMUNICATING ARTERY |
| CVD\_DM | I60.22 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM LEFT ANTERIOR COMMUNICATING ARTERY |
| CVD\_DM | I60.30 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM UNSPECIFIED POSTERIOR COMMUNICATING ARTERY |
| CVD\_DM | I60.31 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM RIGHT POSTERIOR COMMUNICATING ARTERY |
| CVD\_DM | I60.32 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM LEFT POSTERIOR COMMUNICATING ARTERY |
| CVD\_DM | I60.4 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM BASILAR ARTERY |
| CVD\_DM | I60.50 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM UNSPECIFIED VERTEBRAL ARTERY |
| CVD\_DM | I60.51 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM RIGHT VERTEBRAL ARTERY |
| CVD\_DM | I60.52 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM LEFT VERTEBRAL ARTERY |
| CVD\_DM | I60.6 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM OTHER INTRACRANIAL ARTERIES |
| CVD\_DM | I60.7 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE FROM UNSPECIFIED INTRACRANIAL ARTERY |
| CVD\_DM | I60.8 | OTHER NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I60.9 | NONTRAUMATIC SUBARACHNOID HEMORRHAGE, UNSPECIFIED |
| CVD\_DM | I61.0 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE IN HEMISPHERE, SUBCORTICAL |
| CVD\_DM | I61.1 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE IN HEMISPHERE, CORTICAL |
| CVD\_DM | I61.2 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE IN HEMISPHERE, UNSPECIFIED |
| CVD\_DM | I61.3 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE IN BRAIN STEM |
| CVD\_DM | I61.4 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE IN CEREBELLUM |
| CVD\_DM | I61.5 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE, INTRAVENTRICULAR |
| CVD\_DM | I61.6 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE, MULTIPLE LOCALIZED |
| CVD\_DM | I61.8 | OTHER NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I61.9 | NONTRAUMATIC INTRACEREBRAL HEMORRHAGE, UNSPECIFIED |
| CVD\_DM | I62.00 | NONTRAUMATIC SUBDURAL HEMORRHAGE, UNSPECIFIED |
| CVD\_DM | I62.01 | NONTRAUMATIC ACUTE SUBDURAL HEMORRHAGE |
| CVD\_DM | I62.02 | NONTRAUMATIC SUBACUTE SUBDURAL HEMORRHAGE |
| CVD\_DM | I62.03 | NONTRAUMATIC CHRONIC SUBDURAL HEMORRHAGE |
| CVD\_DM | I62.1 | NONTRAUMATIC EXTRADURAL HEMORRHAGE |
| CVD\_DM | I62.9 | NONTRAUMATIC INTRACRANIAL HEMORRHAGE, UNSPECIFIED |
| CVD\_DM | I63.00 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | I63.011 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF RIGHT VERTEBRAL ARTERY |
| CVD\_DM | I63.012 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF LEFT VERTEBRAL ARTERY |
| CVD\_DM | I63.013 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF BILATERAL VERTEBRAL ARTERIES |
| CVD\_DM | I63.019 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED VERTEBRAL ARTERY |
| CVD\_DM | I63.02 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF BASILAR ARTERY |
| CVD\_DM | I63.031 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF RIGHT CAROTID ARTERY |
| CVD\_DM | I63.032 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF LEFT CAROTID ARTERY |
| CVD\_DM | I63.033 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF BILATERAL CAROTID ARTERIES |
| CVD\_DM | I63.039 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED CAROTID ARTERY |
| CVD\_DM | I63.09 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF OTHER PRECEREBRAL ARTERY |
| CVD\_DM | I63.10 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | I63.111 | CEREBRAL INFARCTION DUE TO EMBOLISM OF RIGHT VERTEBRAL ARTERY |
| CVD\_DM | I63.112 | CEREBRAL INFARCTION DUE TO EMBOLISM OF LEFT VERTEBRAL ARTERY |
| CVD\_DM | I63.113 | CEREBRAL INFARCTION DUE TO EMBOLISM OF BILATERAL VERTEBRAL ARTERIES |
| CVD\_DM | I63.119 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED VERTEBRAL ARTERY |
| CVD\_DM | I63.12 | CEREBRAL INFARCTION DUE TO EMBOLISM OF BASILAR ARTERY |
| CVD\_DM | I63.131 | CEREBRAL INFARCTION DUE TO EMBOLISM OF RIGHT CAROTID ARTERY |
| CVD\_DM | I63.132 | CEREBRAL INFARCTION DUE TO EMBOLISM OF LEFT CAROTID ARTERY |
| CVD\_DM | I63.133 | CEREBRAL INFARCTION DUE TO EMBOLISM OF BILATERAL CAROTID ARTERIES |
| CVD\_DM | I63.139 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED CAROTID ARTERY |
| CVD\_DM | I63.19 | CEREBRAL INFARCTION DUE TO EMBOLISM OF OTHER PRECEREBRAL ARTERY |
| CVD\_DM | I63.20 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERIES |
| CVD\_DM | I63.211 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF RIGHT VERTEBRAL ARTERIES |
| CVD\_DM | I63.212 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF LEFT VERTEBRAL ARTERIES |
| CVD\_DM | I63.213 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF BILATERAL VERTEBRAL ARTERIES |
| CVD\_DM | I63.219 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED VERTEBRAL ARTERIES |
| CVD\_DM | I63.22 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF BASILAR ARTERIES |
| CVD\_DM | I63.231 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF RIGHT CAROTID ARTERIES |
| CVD\_DM | I63.232 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF LEFT CAROTID ARTERIES |
| CVD\_DM | I63.233 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF BILATERAL CAROTID ARTERIES |
| CVD\_DM | I63.239 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED CAROTID ARTERIES |
| CVD\_DM | I63.29 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF OTHER PRECEREBRAL ARTERIES |
| CVD\_DM | I63.30 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED CEREBRAL ARTERY |
| CVD\_DM | I63.311 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF RIGHT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.312 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF LEFT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.313 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF BILATERAL MIDDLE CEREBRAL ARTERIES |
| CVD\_DM | I63.319 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.321 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF RIGHT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.322 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF LEFT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.323 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF BILATERAL ANTERIOR ARTERIES |
| CVD\_DM | I63.329 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.331 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF RIGHT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.332 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF LEFT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.333 | CEREBRAL INFARCTION TO THROMBOSIS OF BILATERAL POSTERIOR ARTERIES |
| CVD\_DM | I63.339 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.341 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF RIGHT CEREBELLAR ARTERY |
| CVD\_DM | I63.342 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF LEFT CEREBELLAR ARTERY |
| CVD\_DM | I63.343 | CEREBRAL INFARCTION TO THROMBOSIS OF BILATERAL CEREBELLAR ARTERIES |
| CVD\_DM | I63.349 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF UNSPECIFIED CEREBELLAR ARTERY |
| CVD\_DM | I63.39 | CEREBRAL INFARCTION DUE TO THROMBOSIS OF OTHER CEREBRAL ARTERY |
| CVD\_DM | I63.40 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED CEREBRAL ARTERY |
| CVD\_DM | I63.411 | CEREBRAL INFARCTION DUE TO EMBOLISM OF RIGHT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.412 | CEREBRAL INFARCTION DUE TO EMBOLISM OF LEFT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.413 | CEREBRAL INFARCTION DUE TO EMBOLISM OF BILATERAL MIDDLE CEREBRAL ARTERIES |
| CVD\_DM | I63.419 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.421 | CEREBRAL INFARCTION DUE TO EMBOLISM OF RIGHT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.422 | CEREBRAL INFARCTION DUE TO EMBOLISM OF LEFT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.423 | CEREBRAL INFARCTION DUE TO EMBOLISM OF BILATERAL ANTERIOR CEREBRAL ARTERIES |
| CVD\_DM | I63.429 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.431 | CEREBRAL INFARCTION DUE TO EMBOLISM OF RIGHT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.432 | CEREBRAL INFARCTION DUE TO EMBOLISM OF LEFT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.433 | CEREBRAL INFARCTION DUE TO EMBOLISM OF BILATERAL POSTERIOR CEREBRAL ARTERIES |
| CVD\_DM | I63.439 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.441 | CEREBRAL INFARCTION DUE TO EMBOLISM OF RIGHT CEREBELLAR ARTERY |
| CVD\_DM | I63.442 | CEREBRAL INFARCTION DUE TO EMBOLISM OF LEFT CEREBELLAR ARTERY |
| CVD\_DM | I63.443 | CEREBRAL INFARCTION DUE TO EMBOLISM OF BILATERAL CEREBELLAR ARTERIES |
| CVD\_DM | I63.449 | CEREBRAL INFARCTION DUE TO EMBOLISM OF UNSPECIFIED CEREBELLAR ARTERY |
| CVD\_DM | I63.49 | CEREBRAL INFARCTION DUE TO EMBOLISM OF OTHER CEREBRAL ARTERY |
| CVD\_DM | I63.50 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED CEREBRAL ARTERY |
| CVD\_DM | I63.511 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF RIGHT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.512 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF LEFT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.513 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF BILATERAL MIDDLE ARTERIES |
| CVD\_DM | I63.519 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I63.521 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF RIGHT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.522 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF LEFT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.523 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF BILATERAL ANTERIOR ARTERIES |
| CVD\_DM | I63.529 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.531 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF RIGHT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.532 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF LEFT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.533 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF BILATERAL POSTERIOR ARTERIES |
| CVD\_DM | I63.539 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I63.541 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF RIGHT CEREBELLAR ARTERY |
| CVD\_DM | I63.542 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF LEFT CEREBELLAR ARTERY |
| CVD\_DM | I63.543 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF BILATERAL CEREBELLAR ARTERIES |
| CVD\_DM | I63.549 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF UNSPECIFIED CEREBELLAR ARTERY |
| CVD\_DM | I63.59 | CEREBRAL INFARCTION DUE TO UNSPECIFIED OCCLUSION OR STENOSIS OF OTHER CEREBRAL ARTERY |
| CVD\_DM | I63.6 | CEREBRAL INFARCTION DUE TO CEREBRAL VENOUS THROMBOSIS, NONPYOGENIC |
| CVD\_DM | I63.8 | OTHER CEREBRAL INFARCTION |
| CVD\_DM | I63.9 | CEREBRAL INFARCTION, UNSPECIFIED |
| CVD\_DM | I65.01 | OCCLUSION AND STENOSIS OF RIGHT VERTEBRAL ARTERY |
| CVD\_DM | I65.02 | OCCLUSION AND STENOSIS OF LEFT VERTEBRAL ARTERY |
| CVD\_DM | I65.03 | OCCLUSION AND STENOSIS OF BILATERAL VERTEBRAL ARTERIES |
| CVD\_DM | I65.09 | OCCLUSION AND STENOSIS OF UNSPECIFIED VERTEBRAL ARTERY |
| CVD\_DM | I65.1 | OCCLUSION AND STENOSIS OF BASILAR ARTERY |
| CVD\_DM | I65.21 | OCCLUSION AND STENOSIS OF RIGHT CAROTID ARTERY |
| CVD\_DM | I65.22 | OCCLUSION AND STENOSIS OF LEFT CAROTID ARTERY |
| CVD\_DM | I65.23 | OCCLUSION AND STENOSIS OF BILATERAL CAROTID ARTERIES |
| CVD\_DM | I65.29 | OCCLUSION AND STENOSIS OF UNSPECIFIED CAROTID ARTERY |
| CVD\_DM | I65.8 | OCCLUSION AND STENOSIS OF OTHER PRECEREBRAL ARTERIES |
| CVD\_DM | I65.9 | OCCLUSION AND STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY |
| CVD\_DM | I66.01 | OCCLUSION AND STENOSIS OF RIGHT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I66.02 | OCCLUSION AND STENOSIS OF LEFT MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I66.03 | OCCLUSION AND STENOSIS OF BILATERAL MIDDLE CEREBRAL ARTERIES |
| CVD\_DM | I66.09 | OCCLUSION AND STENOSIS OF UNSPECIFIED MIDDLE CEREBRAL ARTERY |
| CVD\_DM | I66.11 | OCCLUSION AND STENOSIS OF RIGHT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I66.12 | OCCLUSION AND STENOSIS OF LEFT ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I66.13 | OCCLUSION AND STENOSIS OF BILATERAL ANTERIOR CEREBRAL ARTERIES |
| CVD\_DM | I66.19 | OCCLUSION AND STENOSIS OF UNSPECIFIED ANTERIOR CEREBRAL ARTERY |
| CVD\_DM | I66.21 | OCCLUSION AND STENOSIS OF RIGHT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I66.22 | OCCLUSION AND STENOSIS OF LEFT POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I66.23 | OCCLUSION AND STENOSIS OF BILATERAL POSTERIOR CEREBRAL ARTERIES |
| CVD\_DM | I66.29 | OCCLUSION AND STENOSIS OF UNSPECIFIED POSTERIOR CEREBRAL ARTERY |
| CVD\_DM | I66.3 | OCCLUSION AND STENOSIS OF CEREBELLAR ARTERIES |
| CVD\_DM | I66.8 | OCCLUSION AND STENOSIS OF OTHER CEREBRAL ARTERIES |
| CVD\_DM | I66.9 | OCCLUSION AND STENOSIS OF UNSPECIFIED CEREBRAL ARTERY |
| CVD\_DM | I67.0 | DISSECTION OF CEREBRAL ARTERIES, NONRUPTURED |
| CVD\_DM | I67.1 | CEREBRAL ANEURYSM, NONRUPTURED |
| CVD\_DM | I67.2 | CEREBRAL ATHEROSCLEROSIS |
| CVD\_DM | I67.3 | PROGRESSIVE VASCULAR LEUKOENCEPHALOPATHY |
| CVD\_DM | I67.4 | HYPERTENSIVE ENCEPHALOPATHY |
| CVD\_DM | I67.5 | MOYAMOYA DISEASE |
| CVD\_DM | I67.6 | NONPYOGENIC THROMBOSIS OF INTRACRANIAL VENOUS SYSTEM |
| CVD\_DM | I67.7 | CEREBRAL ARTERITIS, NOT ELSEWHERE CLASSIFIED |
| CVD\_DM | I67.81 | ACUTE CEREBROVASCULAR INSUFFICIENCY |
| CVD\_DM | I67.82 | CEREBRAL ISCHEMIA |
| CVD\_DM | I67.83 | POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME |
| CVD\_DM | I67.841 | REVERSIBLE CEREBROVASCULAR VASOCONSTRICTION SYNDROME |
| CVD\_DM | I67.848 | OTHER CEREBROVASCULAR VASOSPASM AND VASOCONSTRICTION |
| CVD\_DM | I67.89 | OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I67.9 | CEREBROVASCULAR DISEASE, UNSPECIFIED |
| CVD\_DM | I68.0 | CEREBRAL AMYLOID ANGIOPATHY |
| CVD\_DM | I68.2 | CEREBRAL ARTERITIS IN OTHER DISEASES CLASSIFIED ELSEWHERE |
| CVD\_DM | I68.8 | OTHER CEREBROVASCULAR DISORDERS IN DISEASES CLASSIFIED ELSEWHERE |
| CVD\_DM | I69.00 | UNSPECIFIED SEQUELAE OF NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.01 | COGNITIVE DEFICITS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.010 | ATTENTION AND CONCENTRATION DEFICIT FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.011 | MEMORY DEFICIT FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.012 | VISUOSPATIAL DEFICIT AND SPATIAL NEGLECT FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.013 | PSYCHOMOTOR DEFICIT FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.014 | FRONTAL LOBE AND EXECUTIVE FUNCTION DEFICIT FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.015 | COGNITIVE SOCIAL OR EMOTIONAL DEFICIT FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.018 | OTHER SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.019 | UNSPECIFIED SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.020 | APHASIA FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.021 | DYSPHASIA FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.022 | DYSARTHRIA FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.023 | FLUENCY DISORDER FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.028 | OTHER SPEECH AND LANGUAGE DEFICITS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.031 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.032 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.033 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.034 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.039 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.041 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.042 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.043 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.044 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.049 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.051 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.052 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.053 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.054 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.059 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.061 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.062 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.063 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.064 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.065 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE, BILATERAL |
| CVD\_DM | I69.069 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.090 | APRAXIA FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.091 | DYSPHAGIA FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.092 | FACIAL WEAKNESS FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.093 | ATAXIA FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.098 | OTHER SEQUELAE FOLLOWING NONTRAUMATIC SUBARACHNOID HEMORRHAGE |
| CVD\_DM | I69.10 | UNSPECIFIED SEQUELAE OF NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.11 | COGNITIVE DEFICITS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.110 | ATTENTION AND CONCENTRATION DEFICIT FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.111 | MEMORY DEFICIT FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.112 | VISUOSPATIAL DEFICIT AND SPATIAL NEGLECT FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.113 | PSYCHOMOTOR DEFICIT FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.114 | FRONTAL LOBE AND EXECUTIVE FUNCTION DEFICIT FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.115 | COGNITIVE SOCIAL OR EMOTIONAL DEFICIT FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.118 | OTHER SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.119 | UNSPECIFIED SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.120 | APHASIA FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.121 | DYSPHASIA FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.122 | DYSARTHRIA FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.123 | FLUENCY DISORDER FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.128 | OTHER SPEECH AND LANGUAGE DEFICITS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.131 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.132 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.133 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.134 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.139 | MONOPLEGIA OF UPPER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.141 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.142 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.143 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.144 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.149 | MONOPLEGIA OF LOWER LIMB FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.151 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.152 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.153 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.154 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.159 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.161 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.162 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.163 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.164 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.165 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE, BILATERAL |
| CVD\_DM | I69.169 | OTHER PARALYTIC SYNDROME FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.190 | APRAXIA FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.191 | DYSPHAGIA FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.192 | FACIAL WEAKNESS FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.193 | ATAXIA FOLLOWING NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.198 | OTHER SEQUELAE OF NONTRAUMATIC INTRACEREBRAL HEMORRHAGE |
| CVD\_DM | I69.20 | UNSPECIFIED SEQUELAE OF OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.21 | COGNITIVE DEFICITS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.210 | ATTENTION AND CONCENTRATION DEFICIT FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.211 | MEMORY DEFICIT FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.212 | VISUOSPATIAL DEFICIT AND SPATIAL NEGLECT FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.213 | PSYCHOMOTOR DEFICIT FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.214 | FRONTAL LOBE AND EXECUTIVE FUNCTION DEFICIT FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.215 | COGNITIVE SOCIAL OR EMOTIONAL DEFICIT FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.218 | OTHER SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.219 | UNSPECIFIED SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.220 | APHASIA FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.221 | DYSPHASIA FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.222 | DYSARTHRIA FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.223 | FLUENCY DISORDER FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.228 | OTHER SPEECH AND LANGUAGE DEFICITS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.231 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.232 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.233 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.234 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.239 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.241 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.242 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.243 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.244 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.249 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.251 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.252 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.253 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.254 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.259 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.261 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.262 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.263 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.264 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.265 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE, BILATERAL |
| CVD\_DM | I69.269 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.290 | APRAXIA FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.291 | DYSPHAGIA FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.292 | FACIAL WEAKNESS FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.293 | ATAXIA FOLLOWING OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.298 | OTHER SEQUELAE OF OTHER NONTRAUMATIC INTRACRANIAL HEMORRHAGE |
| CVD\_DM | I69.30 | UNSPECIFIED SEQUELAE OF CEREBRAL INFARCTION |
| CVD\_DM | I69.31 | COGNITIVE DEFICITS FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.310 | ATTENTION AND CONCENTRATION DEFICIT FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.311 | MEMORY DEFICIT FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.312 | VISUOSPATIAL DEFICIT AND SPATIAL NEGLECT FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.313 | PSYCHOMOTOR DEFICIT FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.314 | FRONTAL LOBE AND EXECUTIVE FUNCTION DEFICIT FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.315 | COGNITIVE SOCIAL OR EMOTIONAL DEFICIT FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.318 | OTHER SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.319 | UNSPECIFIED SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.320 | APHASIA FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.321 | DYSPHASIA FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.322 | DYSARTHRIA FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.323 | FLUENCY DISORDER FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.328 | OTHER SPEECH AND LANGUAGE DEFICITS FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.331 | MONOPLEGIA OF UPPER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.332 | MONOPLEGIA OF UPPER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.333 | MONOPLEGIA OF UPPER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.334 | MONOPLEGIA OF UPPER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.339 | MONOPLEGIA OF UPPER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.341 | MONOPLEGIA OF LOWER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.342 | MONOPLEGIA OF LOWER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.343 | MONOPLEGIA OF LOWER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.344 | MONOPLEGIA OF LOWER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.349 | MONOPLEGIA OF LOWER LIMB FOLLOWING CEREBRAL INFARCTION AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.351 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.352 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.353 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.354 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.359 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING CEREBRAL INFARCTION AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.361 | OTHER PARALYTIC SYNDROME FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.362 | OTHER PARALYTIC SYNDROME FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.363 | OTHER PARALYTIC SYNDROME FOLLOWING CEREBRAL INFARCTION AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.364 | OTHER PARALYTIC SYNDROME FOLLOWING CEREBRAL INFARCTION AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.365 | OTHER PARALYTIC SYNDROME FOLLOWING CEREBRAL INFARCTION, BILATERAL |
| CVD\_DM | I69.369 | OTHER PARALYTIC SYNDROME FOLLOWING CEREBRAL INFARCTION AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.390 | APRAXIA FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.391 | DYSPHAGIA FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.392 | FACIAL WEAKNESS FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.393 | ATAXIA FOLLOWING CEREBRAL INFARCTION |
| CVD\_DM | I69.398 | OTHER SEQUELAE OF CEREBRAL INFARCTION |
| CVD\_DM | I69.80 | UNSPECIFIED SEQUELAE OF OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.81 | COGNITIVE DEFICITS FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.810 | ATTENTION AND CONCENTRATION DEFICIT FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.811 | MEMORY DEFICIT FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.812 | VISUOSPATIAL DEFICIT AND SPATIAL NEGLECT FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.813 | PSYCHOMOTOR DEFICIT FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.814 | FRONTAL LOBE AND EXECUTIVE FUNCTION DEFICIT FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.815 | COGNITIVE SOCIAL OR EMOTIONAL DEFICIT FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.818 | OTHER SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.819 | UNSPECIFIED SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.820 | APHASIA FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.821 | DYSPHASIA FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.822 | DYSARTHRIA FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.823 | FLUENCY DISORDER FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.828 | OTHER SPEECH AND LANGUAGE DEFICITS FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.831 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.832 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.833 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.834 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.839 | MONOPLEGIA OF UPPER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.841 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.842 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.843 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.844 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.849 | MONOPLEGIA OF LOWER LIMB FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.851 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.852 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.853 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.854 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.859 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.861 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.862 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.863 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.864 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.865 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER CEREBROVASCULAR DISEASE, BILATERAL |
| CVD\_DM | I69.869 | OTHER PARALYTIC SYNDROME FOLLOWING OTHER CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.890 | APRAXIA FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.891 | DYSPHAGIA FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.892 | FACIAL WEAKNESS FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.893 | ATAXIA FOLLOWING OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.898 | OTHER SEQUELAE OF OTHER CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.90 | UNSPECIFIED SEQUELAE OF UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.91 | COGNITIVE DEFICITS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.910 | ATTENTION AND CONCENTRATION DEFICIT FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.911 | MEMORY DEFICIT FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.912 | VISUOSPATIAL DEFICIT AND SPATIAL NEGLECT FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.913 | PSYCHOMOTOR DEFICIT FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.914 | FRONTAL LOBE AND EXECUTIVE FUNCTION DEFICIT FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.915 | COGNITIVE SOCIAL OR EMOTIONAL DEFICIT FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.918 | OTHER SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.919 | UNSPECIFIED SYMPTOMS AND SIGNS INVOLVING COGNITIVE FUNCTIONS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.920 | APHASIA FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.921 | DYSPHASIA FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.922 | DYSARTHRIA FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.923 | FLUENCY DISORDER FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.928 | OTHER SPEECH AND LANGUAGE DEFICITS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.931 | MONOPLEGIA OF UPPER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.932 | MONOPLEGIA OF UPPER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.933 | MONOPLEGIA OF UPPER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.934 | MONOPLEGIA OF UPPER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.939 | MONOPLEGIA OF UPPER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.941 | MONOPLEGIA OF LOWER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.942 | MONOPLEGIA OF LOWER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.943 | MONOPLEGIA OF LOWER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.944 | MONOPLEGIA OF LOWER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.949 | MONOPLEGIA OF LOWER LIMB FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.951 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.952 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.953 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.954 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.959 | HEMIPLEGIA AND HEMIPARESIS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.961 | OTHER PARALYTIC SYNDROME FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT DOMINANT SIDE |
| CVD\_DM | I69.962 | OTHER PARALYTIC SYNDROME FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT DOMINANT SIDE |
| CVD\_DM | I69.963 | OTHER PARALYTIC SYNDROME FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING RIGHT NON-DOMINANT SIDE |
| CVD\_DM | I69.964 | OTHER PARALYTIC SYNDROME FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING LEFT NON-DOMINANT SIDE |
| CVD\_DM | I69.965 | OTHER PARALYTIC SYNDROME FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE, BILATERAL |
| CVD\_DM | I69.969 | OTHER PARALYTIC SYNDROME FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE AFFECTING UNSPECIFIED SIDE |
| CVD\_DM | I69.990 | APRAXIA FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.991 | DYSPHAGIA FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.992 | FACIAL WEAKNESS FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.993 | ATAXIA FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I69.998 | OTHER SEQUELAE FOLLOWING UNSPECIFIED CEREBROVASCULAR DISEASE |
| CVD\_DM | I70.0 | ATHEROSCLEROSIS OF AORTA |
| CVD\_DM | I70.1 | ATHEROSCLEROSIS OF RENAL ARTERY |
| CVD\_DM | I70.201 | UNSPECIFIED ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.202 | UNSPECIFIED ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.203 | UNSPECIFIED ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.208 | UNSPECIFIED ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.209 | UNSPECIFIED ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.211 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH INTERMITTENT CLAUDICATION, RIGHT LEG |
| CVD\_DM | I70.212 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH INTERMITTENT CLAUDICATION, LEFT LEG |
| CVD\_DM | I70.213 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH INTERMITTENT CLAUDICATION, BILATERAL LEGS |
| CVD\_DM | I70.218 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH INTERMITTENT CLAUDICATION, OTHER EXTREMITY |
| CVD\_DM | I70.219 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH INTERMITTENT CLAUDICATION, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.221 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH REST PAIN, RIGHT LEG |
| CVD\_DM | I70.222 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH REST PAIN, LEFT LEG |
| CVD\_DM | I70.223 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH REST PAIN, BILATERAL LEGS |
| CVD\_DM | I70.228 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH REST PAIN, OTHER EXTREMITY |
| CVD\_DM | I70.229 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH REST PAIN, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.231 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF RIGHT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.232 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF RIGHT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.233 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF RIGHT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.234 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF RIGHT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.235 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF RIGHT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.238 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF RIGHT LEG WITH ULCERATION OF OTHER PART OF LOWER RIGHT LEG |
| CVD\_DM | I70.239 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF RIGHT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.241 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF LEFT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.242 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF LEFT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.243 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF LEFT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.244 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF LEFT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.245 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF LEFT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.248 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF LEFT LEG WITH ULCERATION OF OTHER PART OF LOWER LEFT LEG |
| CVD\_DM | I70.249 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF LEFT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.25 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF OTHER EXTREMITIES WITH ULCERATION |
| CVD\_DM | I70.261 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH GANGRENE, RIGHT LEG |
| CVD\_DM | I70.262 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH GANGRENE, LEFT LEG |
| CVD\_DM | I70.263 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH GANGRENE, BILATERAL LEGS |
| CVD\_DM | I70.268 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH GANGRENE, OTHER EXTREMITY |
| CVD\_DM | I70.269 | ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES WITH GANGRENE, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.291 | OTHER ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.292 | OTHER ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.293 | OTHER ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.298 | OTHER ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.299 | OTHER ATHEROSCLEROSIS OF NATIVE ARTERIES OF EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.301 | UNSPECIFIED ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.302 | UNSPECIFIED ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.303 | UNSPECIFIED ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.308 | UNSPECIFIED ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.309 | UNSPECIFIED ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.311 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, RIGHT LEG |
| CVD\_DM | I70.312 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, LEFT LEG |
| CVD\_DM | I70.313 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, BILATERAL LEGS |
| CVD\_DM | I70.318 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, OTHER EXTREMITY |
| CVD\_DM | I70.319 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.321 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, RIGHT LEG |
| CVD\_DM | I70.322 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, LEFT LEG |
| CVD\_DM | I70.323 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, BILATERAL LEGS |
| CVD\_DM | I70.328 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, OTHER EXTREMITY |
| CVD\_DM | I70.329 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.331 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.332 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.333 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.334 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.335 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.338 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.339 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.341 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.342 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.343 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.344 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.345 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.348 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.349 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.35 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF OTHER EXTREMITY WITH ULCERATION |
| CVD\_DM | I70.361 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, RIGHT LEG |
| CVD\_DM | I70.362 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, LEFT LEG |
| CVD\_DM | I70.363 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, BILATERAL LEGS |
| CVD\_DM | I70.368 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, OTHER EXTREMITY |
| CVD\_DM | I70.369 | ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.391 | OTHER ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.392 | OTHER ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.393 | OTHER ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.398 | OTHER ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.399 | OTHER ATHEROSCLEROSIS OF UNSPECIFIED TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.401 | UNSPECIFIED ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.402 | UNSPECIFIED ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.403 | UNSPECIFIED ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.408 | UNSPECIFIED ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.409 | UNSPECIFIED ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.411 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, RIGHT LEG |
| CVD\_DM | I70.412 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, LEFT LEG |
| CVD\_DM | I70.413 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, BILATERAL LEGS |
| CVD\_DM | I70.418 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, OTHER EXTREMITY |
| CVD\_DM | I70.419 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.421 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, RIGHT LEG |
| CVD\_DM | I70.422 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, LEFT LEG |
| CVD\_DM | I70.423 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, BILATERAL LEGS |
| CVD\_DM | I70.428 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, OTHER EXTREMITY |
| CVD\_DM | I70.429 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.431 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.432 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.433 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.434 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.435 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.438 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.439 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.441 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.442 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.443 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.444 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.445 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.448 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.449 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.45 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF OTHER EXTREMITY WITH ULCERATION |
| CVD\_DM | I70.461 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, RIGHT LEG |
| CVD\_DM | I70.462 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, LEFT LEG |
| CVD\_DM | I70.463 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, BILATERAL LEGS |
| CVD\_DM | I70.468 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, OTHER EXTREMITY |
| CVD\_DM | I70.469 | ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.491 | OTHER ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.492 | OTHER ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.493 | OTHER ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.498 | OTHER ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.499 | OTHER ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.501 | UNSPECIFIED ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.502 | UNSPECIFIED ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.503 | UNSPECIFIED ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.508 | UNSPECIFIED ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.509 | UNSPECIFIED ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.511 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, RIGHT LEG |
| CVD\_DM | I70.512 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, LEFT LEG |
| CVD\_DM | I70.513 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, BILATERAL LEGS |
| CVD\_DM | I70.518 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, OTHER EXTREMITY |
| CVD\_DM | I70.519 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.521 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, RIGHT LEG |
| CVD\_DM | I70.522 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, LEFT LEG |
| CVD\_DM | I70.523 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, BILATERAL LEGS |
| CVD\_DM | I70.528 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, OTHER EXTREMITY |
| CVD\_DM | I70.529 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.531 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.532 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.533 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.534 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.535 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.538 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.539 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.541 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.542 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.543 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.544 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.545 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.548 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.549 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.55 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF OTHER EXTREMITY WITH ULCERATION |
| CVD\_DM | I70.561 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, RIGHT LEG |
| CVD\_DM | I70.562 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, LEFT LEG |
| CVD\_DM | I70.563 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, BILATERAL LEGS |
| CVD\_DM | I70.568 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, OTHER EXTREMITY |
| CVD\_DM | I70.569 | ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.591 | OTHER ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.592 | OTHER ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.593 | OTHER ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.598 | OTHER ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.599 | OTHER ATHEROSCLEROSIS OF NONAUTOLOGOUS BIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.601 | UNSPECIFIED ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.602 | UNSPECIFIED ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.603 | UNSPECIFIED ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.608 | UNSPECIFIED ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.609 | UNSPECIFIED ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.611 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, RIGHT LEG |
| CVD\_DM | I70.612 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, LEFT LEG |
| CVD\_DM | I70.613 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, BILATERAL LEGS |
| CVD\_DM | I70.618 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, OTHER EXTREMITY |
| CVD\_DM | I70.619 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.621 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, RIGHT LEG |
| CVD\_DM | I70.622 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, LEFT LEG |
| CVD\_DM | I70.623 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, BILATERAL LEGS |
| CVD\_DM | I70.628 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, OTHER EXTREMITY |
| CVD\_DM | I70.629 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.631 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.632 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.633 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.634 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.635 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.638 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.639 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.641 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.642 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.643 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.644 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.645 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.648 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.649 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.65 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF OTHER EXTREMITY WITH ULCERATION |
| CVD\_DM | I70.661 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, RIGHT LEG |
| CVD\_DM | I70.662 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, LEFT LEG |
| CVD\_DM | I70.663 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, BILATERAL LEGS |
| CVD\_DM | I70.668 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, OTHER EXTREMITY |
| CVD\_DM | I70.669 | ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.691 | OTHER ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.692 | OTHER ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.693 | OTHER ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.698 | OTHER ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.699 | OTHER ATHEROSCLEROSIS OF NONBIOLOGICAL BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.701 | UNSPECIFIED ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.702 | UNSPECIFIED ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.703 | UNSPECIFIED ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.708 | UNSPECIFIED ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.709 | UNSPECIFIED ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.711 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, RIGHT LEG |
| CVD\_DM | I70.712 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, LEFT LEG |
| CVD\_DM | I70.713 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, BILATERAL LEGS |
| CVD\_DM | I70.718 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, OTHER EXTREMITY |
| CVD\_DM | I70.719 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH INTERMITTENT CLAUDICATION, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.721 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, RIGHT LEG |
| CVD\_DM | I70.722 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, LEFT LEG |
| CVD\_DM | I70.723 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, BILATERAL LEGS |
| CVD\_DM | I70.728 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, OTHER EXTREMITY |
| CVD\_DM | I70.729 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH REST PAIN, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.731 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.732 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.733 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.734 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.735 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.738 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.739 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE RIGHT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.741 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF THIGH |
| CVD\_DM | I70.742 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF CALF |
| CVD\_DM | I70.743 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF ANKLE |
| CVD\_DM | I70.744 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF HEEL AND MIDFOOT |
| CVD\_DM | I70.745 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF FOOT |
| CVD\_DM | I70.748 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF OTHER PART OF LOWER LEG |
| CVD\_DM | I70.749 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE LEFT LEG WITH ULCERATION OF UNSPECIFIED SITE |
| CVD\_DM | I70.75 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF OTHER EXTREMITY WITH ULCERATION |
| CVD\_DM | I70.761 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, RIGHT LEG |
| CVD\_DM | I70.762 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, LEFT LEG |
| CVD\_DM | I70.763 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, BILATERAL LEGS |
| CVD\_DM | I70.768 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, OTHER EXTREMITY |
| CVD\_DM | I70.769 | ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES WITH GANGRENE, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.791 | OTHER ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, RIGHT LEG |
| CVD\_DM | I70.792 | OTHER ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, LEFT LEG |
| CVD\_DM | I70.793 | OTHER ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, BILATERAL LEGS |
| CVD\_DM | I70.798 | OTHER ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, OTHER EXTREMITY |
| CVD\_DM | I70.799 | OTHER ATHEROSCLEROSIS OF OTHER TYPE OF BYPASS GRAFT(S) OF THE EXTREMITIES, UNSPECIFIED EXTREMITY |
| CVD\_DM | I70.8 | ATHEROSCLEROSIS OF OTHER ARTERIES |
| CVD\_DM | I70.90 | UNSPECIFIED ATHEROSCLEROSIS |
| CVD\_DM | I70.91 | GENERALIZED ATHEROSCLEROSIS |
| CVD\_DM | I70.92 | CHRONIC TOTAL OCCLUSION OF ARTERY OF THE EXTREMITIES |
| CVD\_DM | I79.2 | Peripheral angiopathy in diseases classified elsewhere |
| CVD\_DM | T82.211A | BREAKDOWN (MECHANICAL) OF CORONARY ARTERY BYPASS GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.211D | BREAKDOWN (MECHANICAL) OF CORONARY ARTERY BYPASS GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.211S | BREAKDOWN (MECHANICAL) OF CORONARY ARTERY BYPASS GRAFT, SEQUELA |
| CVD\_DM | T82.212A | DISPLACEMENT OF CORONARY ARTERY BYPASS GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.212D | DISPLACEMENT OF CORONARY ARTERY BYPASS GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.212S | DISPLACEMENT OF CORONARY ARTERY BYPASS GRAFT, SEQUELA |
| CVD\_DM | T82.213A | LEAKAGE OF CORONARY ARTERY BYPASS GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.213D | LEAKAGE OF CORONARY ARTERY BYPASS GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.213S | LEAKAGE OF CORONARY ARTERY BYPASS GRAFT, SEQUELA |
| CVD\_DM | T82.218A | OTHER MECHANICAL COMPLICATION OF CORONARY ARTERY BYPASS GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.218D | OTHER MECHANICAL COMPLICATION OF CORONARY ARTERY BYPASS GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.218S | OTHER MECHANICAL COMPLICATION OF CORONARY ARTERY BYPASS GRAFT, SEQUELA |
| CVD\_DM | T82.221A | BREAKDOWN (MECHANICAL) OF BIOLOGICAL HEART VALVE GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.221D | BREAKDOWN (MECHANICAL) OF BIOLOGICAL HEART VALVE GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.221S | BREAKDOWN (MECHANICAL) OF BIOLOGICAL HEART VALVE GRAFT, SEQUELA |
| CVD\_DM | T82.222A | DISPLACEMENT OF BIOLOGICAL HEART VALVE GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.222D | DISPLACEMENT OF BIOLOGICAL HEART VALVE GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.222S | DISPLACEMENT OF BIOLOGICAL HEART VALVE GRAFT, SEQUELA |
| CVD\_DM | T82.223A | LEAKAGE OF BIOLOGICAL HEART VALVE GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.223D | LEAKAGE OF BIOLOGICAL HEART VALVE GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.223S | LEAKAGE OF BIOLOGICAL HEART VALVE GRAFT, SEQUELA |
| CVD\_DM | T82.228A | OTHER MECHANICAL COMPLICATION OF BIOLOGICAL HEART VALVE GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.228D | OTHER MECHANICAL COMPLICATION OF BIOLOGICAL HEART VALVE GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.228S | OTHER MECHANICAL COMPLICATION OF BIOLOGICAL HEART VALVE GRAFT, SEQUELA |
| CVD\_DM | T82.310A | BREAKDOWN (MECHANICAL) OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), INITIAL ENCOUNTER |
| CVD\_DM | T82.310D | BREAKDOWN (MECHANICAL) OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.310S | BREAKDOWN (MECHANICAL) OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SEQUELA |
| CVD\_DM | T82.311A | BREAKDOWN (MECHANICAL) OF CAROTID ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.311D | BREAKDOWN (MECHANICAL) OF CAROTID ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.311S | BREAKDOWN (MECHANICAL) OF CAROTID ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.312A | BREAKDOWN (MECHANICAL) OF FEMORAL ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.312D | BREAKDOWN (MECHANICAL) OF FEMORAL ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.312S | BREAKDOWN (MECHANICAL) OF FEMORAL ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.318A | BREAKDOWN (MECHANICAL) OF OTHER VASCULAR GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.318D | BREAKDOWN (MECHANICAL) OF OTHER VASCULAR GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.318S | BREAKDOWN (MECHANICAL) OF OTHER VASCULAR GRAFTS, SEQUELA |
| CVD\_DM | T82.319A | BREAKDOWN (MECHANICAL) OF UNSPECIFIED VASCULAR GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.319D | BREAKDOWN (MECHANICAL) OF UNSPECIFIED VASCULAR GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.319S | BREAKDOWN (MECHANICAL) OF UNSPECIFIED VASCULAR GRAFTS, SEQUELA |
| CVD\_DM | T82.320A | DISPLACEMENT OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), INITIAL ENCOUNTER |
| CVD\_DM | T82.320D | DISPLACEMENT OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.320S | DISPLACEMENT OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SEQUELA |
| CVD\_DM | T82.321A | DISPLACEMENT OF CAROTID ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.321D | DISPLACEMENT OF CAROTID ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.321S | DISPLACEMENT OF CAROTID ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.322A | DISPLACEMENT OF FEMORAL ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.322D | DISPLACEMENT OF FEMORAL ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.322S | DISPLACEMENT OF FEMORAL ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.328A | DISPLACEMENT OF OTHER VASCULAR GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.328D | DISPLACEMENT OF OTHER VASCULAR GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.328S | DISPLACEMENT OF OTHER VASCULAR GRAFTS, SEQUELA |
| CVD\_DM | T82.329A | DISPLACEMENT OF UNSPECIFIED VASCULAR GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.329D | DISPLACEMENT OF UNSPECIFIED VASCULAR GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.329S | DISPLACEMENT OF UNSPECIFIED VASCULAR GRAFTS, SEQUELA |
| CVD\_DM | T82.330A | LEAKAGE OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), INITIAL ENCOUNTER |
| CVD\_DM | T82.330D | LEAKAGE OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.330S | LEAKAGE OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SEQUELA |
| CVD\_DM | T82.331A | LEAKAGE OF CAROTID ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.331D | LEAKAGE OF CAROTID ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.331S | LEAKAGE OF CAROTID ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.332A | LEAKAGE OF FEMORAL ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.332D | LEAKAGE OF FEMORAL ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.332S | LEAKAGE OF FEMORAL ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.338A | LEAKAGE OF OTHER VASCULAR GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.338D | LEAKAGE OF OTHER VASCULAR GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.338S | LEAKAGE OF OTHER VASCULAR GRAFTS, SEQUELA |
| CVD\_DM | T82.339A | LEAKAGE OF UNSPECIFIED VASCULAR GRAFT, INITIAL ENCOUNTER |
| CVD\_DM | T82.339D | LEAKAGE OF UNSPECIFIED VASCULAR GRAFT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.339S | LEAKAGE OF UNSPECIFIED VASCULAR GRAFT, SEQUELA |
| CVD\_DM | T82.390A | OTHER MECHANICAL COMPLICATION OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), INITIAL ENCOUNTER |
| CVD\_DM | T82.390D | OTHER MECHANICAL COMPLICATION OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.390S | OTHER MECHANICAL COMPLICATION OF AORTIC (BIFURCATION) GRAFT (REPLACEMENT), SEQUELA |
| CVD\_DM | T82.391A | OTHER MECHANICAL COMPLICATION OF CAROTID ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.391D | OTHER MECHANICAL COMPLICATION OF CAROTID ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.391S | OTHER MECHANICAL COMPLICATION OF CAROTID ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.392A | OTHER MECHANICAL COMPLICATION OF FEMORAL ARTERIAL GRAFT (BYPASS), INITIAL ENCOUNTER |
| CVD\_DM | T82.392D | OTHER MECHANICAL COMPLICATION OF FEMORAL ARTERIAL GRAFT (BYPASS), SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.392S | OTHER MECHANICAL COMPLICATION OF FEMORAL ARTERIAL GRAFT (BYPASS), SEQUELA |
| CVD\_DM | T82.398A | OTHER MECHANICAL COMPLICATION OF OTHER VASCULAR GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.398D | OTHER MECHANICAL COMPLICATION OF OTHER VASCULAR GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.398S | OTHER MECHANICAL COMPLICATION OF OTHER VASCULAR GRAFTS, SEQUELA |
| CVD\_DM | T82.399A | OTHER MECHANICAL COMPLICATION OF UNSPECIFIED VASCULAR GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.399D | OTHER MECHANICAL COMPLICATION OF UNSPECIFIED VASCULAR GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.399S | OTHER MECHANICAL COMPLICATION OF UNSPECIFIED VASCULAR GRAFTS, SEQUELA |
| CVD\_DM | T82.7XXA | INFECTION AND INFLAMMATORY REACTION DUE TO OTHER CARDIAC AND VASCULAR DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.7XXD | INFECTION AND INFLAMMATORY REACTION DUE TO OTHER CARDIAC AND VASCULAR DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.7XXS | INFECTION AND INFLAMMATORY REACTION DUE TO OTHER CARDIAC AND VASCULAR DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.817A | EMBOLISM DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.817D | EMBOLISM DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.817S | EMBOLISM DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.818A | EMBOLISM DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.818D | EMBOLISM DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.818S | EMBOLISM DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.827A | FIBROSIS DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.827D | FIBROSIS DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.827S | FIBROSIS DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.828A | FIBROSIS DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.828D | FIBROSIS DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.828S | FIBROSIS DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.837A | HEMORRHAGE DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.837D | HEMORRHAGE DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.837S | HEMORRHAGE DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.838A | HEMORRHAGE DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.838D | HEMORRHAGE DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.838S | HEMORRHAGE DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.847A | PAIN DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.847D | PAIN DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.847S | PAIN DUE TO CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.848A | PAIN DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.848D | PAIN DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.848S | PAIN DUE TO VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.855A | STENOSIS OF CORONARY ARTERY STENT, INITIAL ENCOUNTER |
| CVD\_DM | T82.855D | STENOSIS OF CORONARY ARTERY STENT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.855S | STENOSIS OF CORONARY ARTERY STENT, SEQUELA |
| CVD\_DM | T82.856A | STENOSIS OF PERIPHERAL VASCULAR STENT, INITIAL ENCOUNTER |
| CVD\_DM | T82.856D | STENOSIS OF PERIPHERAL VASCULAR STENT, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.856S | STENOSIS OF PERIPHERAL VASCULAR STENT, SEQUELA |
| CVD\_DM | T82.857A | STENOSIS OF CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.857D | STENOSIS OF CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.857S | STENOSIS OF CARDIAC PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | T82.858A | STENOSIS OF OTHER VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, INITIAL ENCOUNTER |
| CVD\_DM | T82.858D | STENOSIS OF OTHER VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SUBSEQUENT ENCOUNTER |
| CVD\_DM | T82.858S | STENOSIS OF OTHER VASCULAR PROSTHETIC DEVICES, IMPLANTS AND GRAFTS, SEQUELA |
| CVD\_DM | Z95.5 | PRESENCE OF CORONARY ANGIOPLASTY IMPLANT AND GRAFT |
| CVD\_DM | Z95.818 | PRESENCE OF OTHER CARDIAC IMPLANTS AND GRAFTS |
| CVD\_DM | Z95.820 | PERIPHERAL VASCULAR ANGIOPLASTY STATUS WITH IMPLANTS AND GRAFTS |
| CVD\_DM | Z95.828 | PRESENCE OF OTHER VASCULAR IMPLANTS AND GRAFTS |
| CVD\_DM | Z95.9 | PRESENCE OF CARDIAC AND VASCULAR IMPLANT AND GRAFT, UNSPECIFIED |
| CVD\_DM | Z98.61 | CORONARY ANGIOPLASTY STATUS |

# Medication Cutoff Doses

The table below contains two different cutoff values used in the KB: the “increase dose ceiling” and the “maximum dose.” If a patient has an active prescription with a dose that is greater than or equal to the “increase dose ceiling,” then we will not recommend increasing the dose of the drug. If a patient has an active prescription with a dose that is greater than the “maximum dose,” then a message will be issued stating that patient has an active prescription for a dose greater than the maximum dose.

The following cutoff area is used, in part, because the daily drug dose is calculated using the (strength of the tablet \* number of tablets)/days of prescription; this may not be an integer. Example: 100 pills at 5mg each for 90 days. Calculation applies to tablets only (encoded drugs are all tablets).

|  |  |  |
| --- | --- | --- |
|  | **Increase dose ceiling (mg)** | **Maximum dose (mg)** |
| Empagliflozin | 24.9 | 25.1 |
| Saxagliptin | 4.9 | 5.1 |
| Glipizide | 39.9 | 40.1 |
| Glipizide XL | 19.9 | 20.1 |
| Metformin | 2499.9 | 2550.1 |
| Metformin\_ER | 1999.9 | 2000.1 |
| Pioglitazone | 44.9 | 45.1 |

# Dealing with Adverse Reactions (ADRs)

An ADR has two components: a reactant and a reaction. For this discussion, the reactant is a drug and the reaction can be a myriad of possibilities, e.g. rash, cough, angioedema, etc.

We have encoded specific, potentially life-threatening reactions to a DM drug as absolute contraindications. This is for not only the DM drug that is being evaluated, but also a related drug that has a cross-reactivity. Thus, for reactant = glipizide, we have, as an absolute contraindication, the reaction = anaphylaxis, to the drugs glipizide, glyburide, glimepiride (all second generation sulfonylureas) or first generation sulfonylureas, as well as sulfa drugs.

Glipizide, and these cross-reactive drugs may have reactions other than anaphylaxis and these other reactions are handled differently. Glipizide and these cross-reactive drugs, along with their associated reactions, are displayed as “Relative Contraindications.” Note that, while the encoding in the KB identifies the cross-reactive drugs and associates these ADRs with the recommended or evaluated drugs, there is no additional KB/EON processing (except for the absolute contraindications, above). The ADRs are a “pass-through” of the patient data.

Therefore, while we display such ADRs as relative contraindications, we have not specifically encoded them as relative contraindications.

# Examples using Sample Patient Characteristics

## One drug Scenario

Scenarios are described above in 4.4 Scenario: One oral drug.

All doses given as daily doses; session time = 8/15/2017.

### Case A

Drug not contraindicated and dose can be increased:

Medication: metformin 1000 mg

Labs: eGFR = 80 on 8/1/2017

Recommendation is to increase dose of metformin

### Case B

Drug not contraindicated and dose cannot be increased because of a “do not intensify controllable” criteria:

Medication: metformin 1000 mg

Labs: eGFR = 80 on 8/1/2015

Recommendation is blocked; order eGFR

### Case C

Drug not contraindicated and dose cannot be increased because of a “do not intensify uncontrollable” criteria:

Medication: metformin 1000 mg

Labs: eGFR = 40 on 8/1/2017

Recommendation is to add second line drug

### Case D

Drug not contraindicated and dose cannot be increased because drug is at maximum dose:

Medication: metformin 2500 mg

Labs: eGFR = 80 on 8/1/2017

Recommendation is to add second line drug

### Case E

Drug is contraindicated:

Medication: metformin 2500 mg

Labs: eGFR = 29 on 8/1/2017

Recommendation is to stop metformin and add second line drug

## Two drug Scenario

Scenarios are described above in 4.5 Scenario: Two oral drugs; Case 1 through 15.

All doses given as daily doses; session time = 8/15/2017.

### Case 1

Both drugs are contraindicated:

Medications: metformin, pioglitazone

labs: eGFR = 29 on 8/1/2017

diagnosis: bladder cancer since 5/1/2017

Recommendation is to stop both drugs; add different second line drug

### Case 2

One drug is contraindicated and the other can have its dose increased:

Medications: metformin 1000 mg; glipizide 20 mg

Labs: eGFR = 29 on 8/1/2017

Recommendation is to stop metformin and add different second line drug; increase dose of glipizide

### Case 3

One drug is contraindicated and the other drug’s dose cannot be increased because of a “do not intensify controllable” criteria:

Medications: metformin 1000 mg; glipizide 20 mg

Labs: eGFR = 80 on 8/1/2015

ADR of anaphylaxis to glipizide

Recommendation is to stop glipizide, block recommendation for increase dose of metformin, and order eGFR

### Case 4

One drug is contraindicated and the other drug’s dose cannot be increased because of a “do not intensify uncontrollable” criteria:

Medications: metformin 1000 mg; glipizide 20 mg

Labs: eGFR = 40 on 8/1/2017

ADR of anaphylaxis to glipizide

Recommendation is to stop glipizide; add different second line drug

### Case 5

One drug is contraindicated and the other drug’s dose is at maximum dose:

Medications: metformin 1000 mg; glipizide 40 mg

Labs: eGFR = 29 on 8/1/2017

Recommendation is to stop metformin; add another second line drug

### Case 6

Both drugs are not contraindicated and both can have their dose increased:

Medications: metformin 1000, glipizide 20 mg

Labs: eGFR = 80 on 8/1/2017

Recommendation is to increase dose of metformin or glipizide

### Case 7

Both drugs are not contraindicated, both drugs are not at maximum dose, but both drugs cannot have dose increased because of a “do not intensify controllable” criteria:

Medications: Metformin 1000 mg; pioglitazone 15 mg

Labs: eGFR = 80 on 8/1/2015; no AST and ALT since 8/1/2015

Recommendation is blocked for metformin, order eGFR; recommendation is blocked for pioglitazone, order AST or ALT

### Case 8

Both drugs are not contraindicated, both drugs are not at maximum dose, one drug can have its dose increased, the other cannot because of a “do not intensify controllable” criteria:

Medications: metformin 1000 mg; glipizide 20 mg

Labs: eGFR = 80 on 8/1/2015

Recommendation is blocked for metformin, order eGFR; increase dose of glipizide

### Case 9

Both drugs are not contraindicated, both drugs are not at maximum dose, one drug can have its dose increased, the other cannot because of “do not intensify uncontrollable” criteria:

Medications: metformin 1000 mg; glipizide 20 mg

Labs: eGFR = 40 on 8/1/2017

Recommendation is to increase dose of glipizide

### Case 10

Both drugs are not contraindicated, both drugs are not at maximum dose, one drug cannot have its dose increased because of a “do not intensify controllable” criteria, the other cannot because of a “do not intensify uncontrollable” criteria:

Medications: Metformin 1000 mg; pioglitazone 15 mg

Labs: eGFR = 40 on 8/1/2017; AST and ALT labs on 8/1/2015

Recommendation is blocked for pioglitazone, order AST or ALT

### Case 11

Both drugs are not contraindicated, both drugs are not at maximum dose, both drugs cannot have their dose increased because of a “do not intensify uncontrollable” criteria:

Medications: Metformin 1000 mg; pioglitazone 15 mg

Labs: eGFR = 40 on 8/1/2017; AST = 140 on 8/1/2017

Recommendation is to add another second line drug and refer to an endocrinologist

### Case 12

Both drugs are not contraindicated, one drug is at maximum dose, the other drug is not at maximum dose and can have its dose increased:

Medications: Metformin 2500 mg; pioglitazone 15 mg

Labs: eGFR = 80 on 8/1/2017; AST = 35 on 8/1/2017; ALT = 45 on 8/1/2017

Recommendation is increase dose of pioglitazone

### Case 13

Both drugs are not contraindicated, one drug at maximum dose, the other drug is not at maximum dose and but cannot have its dose increased because of a “do not intensify controllable criteria”:

Medications: Metformin 2500 mg; pioglitazone 15 mg

Labs: eGFR = 80 on 8/1/2017; AST = 35 on 8/1/2015; ALT = 45 on 8/1/2015

Recommendation is blocked for pioglitazone, order AST or ALT

### Case 14

Both drugs are not contraindicated, one drug is at maximum dose, the other drug is not at maximum dose and but cannot have its dose increased because of a “do not intensify uncontrollable criteria”:

Medications: Metformin 2500 mg; pioglitazone 15 mg

Labs: eGFR = 80 on 8/1/2017; AST = 165 on 8/1/2017

Recommendation is add another second line drug and refer to an endocrinologist

### Case 15

Both drugs are not contraindicated and both are at maximum dose:

Medications: Metformin 2500 mg; pioglitazone 45 mg

Labs: eGFR = 80 on 8/1/2017; AST = 35 on 8/1/2017; ALT = 45 on 8/1/2017

Recommendation is add another second line drug and refer to an endocrinologist

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8. *Supplement to: Zinman B, Wanner C, Lachin JM, et al. Empagliflozin, cardiovascular outcomes, and mortality in type 2 diabetes.* **Zinman, Bernard, et al.** 22, s.l. : Massachusetts Medical Society, September 17, 2015, New England Journal of Medicine, Vol. 373.

# Wish list/To do’s

1. Check with allergist or pharmacy: ADR to sulfa means patient has ADR (cross-reactivity) to glipizide, a sulfonyl urea
2. Encode more DM drugs. This will impact encoding of bad drug partners, which, in turn impacts count of number of encoded drugs in same drug class.

As of 4/10/2018; glyburide is a second generation sulfonylurea, second line non-formulary drug; glimepiride is a second generation sulfonylurea, second line formulary drug; acarbose is an alpha-glucosidase inhibitor, a fourth line formulary drug, liraglutide is a GLP-1 agonist, third line non-formulary drug

As of 3/19/2018

(from Amy)

|  |  |
| --- | --- |
| **Non-encoded Drug** | **Patients** |
| ACARBOSE | 312 |
| ALBIGLUTIDE | 2 |
| CANAGLIFLOZIN | 4 |
| DULAGLUTIDE | 2 |
| EXENATIDE | 18 |
| GLIMEPIRIDE | 57 |
| GLYBURIDE | 372 |
| INSULIN | 6991 |
| LINAGLIPTIN | 68 |
| LIRAGLUTIDE | 118 |
| PRAMLINTIDE | 3 |
| REPAGLINIDE | 9 |
| SITAGLIPTIN | 15 |
| TOLAZAMIDE | 1 |
| TOLBUTAMIDE | 2 |

From Justin, separated into Northern Cal and PA patients, includes separately both encoded and non-encoded drugs

|  |  |  |
| --- | --- | --- |
|  | 612 | 640 |
| METFORMIN | 7840 | 5402 |
| GLIPIZIDE | 3600 | 2590 |
| Saxagliptin | 1183 | 464 |
| PIOGLITAZONE | 190 | 329 |
| Empagliflozin | 55 | 48 |
|  |  |  |
|  | 612 | 640 |
| all Insulin | 6584 | 4824 |
| GLYBURIDE | 177 | 191 |
| ACARBOSE | 231 | 74 |
| Linagliptin | 102 | 64 |
| Liraglutide | 36 | 85 |
| GLIMEPIRIDE | 43 | 20 |
| Exenatide | 15 | 3 |
| REPAGLINIDE | 7 | 2 |
| SITAGLIPTIN | 9 | 6 |
| Albiglutide | 2 | 0 |
| Alogliptin | 1 | 0 |
| Canagliflozin | 3 | 0 |
| Dulaglutide | 3 | 0 |
| Pramlintide | 3 | 0 |
| TOLAZAMIDE | 1 | 0 |
| TOLBUTAMIDE | 2 | 0 |
|  |  |  |
|  |  |  |
|  |  |  |

1. For Bad drug partners, one of which is a DM medication and not contraindicated, and the other is not, rather than simply issuing a “stop one” message and no recommendations, instead, provide recommendations assuming
   * + DM medication has been stopped
     + Non DM medication has been stopped

Specific case: presence of pioglitazone and gemfibrozil. Not clear to me (CO) how this would be done

1. Currently, if patient has active prescription of >=3 encoded drugs any dose, patient is out of scope. Change this out of scope criterion to ‘3 encoded drugs at max dose”.

Considerations: Should criterion be: “3 encoded drugs at max dose and not contraindicated”? If so, do we check if labs are within 1 year time frame or not? Absolute contraindication for metformin is eGFR<30 in past year; if eGFR is older than 1 year, the criterion is false because eGFR is missing .

Also, how to deal with metformin if eGFR<45 in the past year and is not at max dose, but cannot increase dose. How to integrate this situation with criterion above “at max dose”. Similarly for saxigliptin.

What if we have “decrease dose situation” when drug at max dose?

Need to check about when to do referral/messages about referral: on 3 drugs not on 2?

CO question: why not make out of scope >=4 drugs? What are issues?

Put on wishlist at 8/14/2018 medsafe meeting.

1. Display order of drug recommendations (from 4/24/2018 medsafe Tuesday meeting)

MA: would prefer that, when there is an “add drug” and “increase dose”, display “add drug” first.

ST:  Difficult to do with current algorithm, if we want to vary the sorting by clinical domains. This preference for "add drug" is true for DM and HTN (where there is a preference for using dual drug therapy over maximizing the dose of first drug), not clear that it will be true for all future KBs. Also, if dual-drug therapy is clearly preferred over maximizing the dose of first drug, the clinical algorithm can be changed to recommend only “add drug” and not "increase dose."

CO: added fine grain priority to DM Substitute=100, Add=200, Increase=300. May be used in the future

1. Decrease dose of Sax if >2.5 and eGFR<45 in past year

Dependency: need Drug\_Usage slot=”do not decrease criteria”, so that may include criterion=”Absence of eGFR in past year” to enable blocked decrease rec…DONE by ST June 2018

Use cases, need to be defined

YES indicates recommendation to be given and needs to be encoded.

?? means being considered.

Applies more to algorithm paths.

Patient on Sax, dose 2.5, GFR=40<45 within in past year

               rec add drug YES

Patient on Sax, dose 5, GFR=40<45 within in past year

               rec decrease dose  YES

Patient on Sax, dose 5, GFR OLDer than 1 year, =40<45

               rec blocked decrease dose  YES

Patient on Sax, dose 5, GFR=40<45 within in past year AND

pt on metformin dose 1000

               rec decrease dose Sax  YES

               rec add drug???

Patient on Sax, dose 5, GFR=40<45 within in past year AND

pt on glip 40 (max)

               rec decrease dose Sax  YES

               rec add drug ??

Patient on Sax, dose 5, GFR=40<45 within in past year AND

pt on glip 20 (not max)

               rec decrease dose Sax   YES

               rec incr dose glip  YES

1. Decrease dose of metformin at max dose and eGFR<45 (and >30) (from 6/19/2018 clinical meeting) Questions similar to sax.
2. From clinical and medsafe meeting 6/26/2028) Consider date of prescription of DM med relative to session date or date recommendations are provided. Currently we do not do this, so patient could have received new med a few days ago, and CDS rec’s are pre-mature. Need to consider:

What date should be used as date of med? Date of prescription? Date patient received his/her med?

What is ‘reasonable’ length of time between date of med and current date/session time for CDS rec’s to be ok?

1. From offline testing 7/10/2018 If patient is on metformin and metformin ER and glipizide and glipizide XL, issue recommendations. These count at 4 meds, but really are only 2 meds (in two different drug classes) so can give rec’s.
2. From offline testing 7/10/2018. Display low MPR message for encoded drugs if patient doesn’t receive rec’s and has old HbA1c
3. From offline testing 7/10/2018. Display low MPR message for encoded drugs if patient doesn’t receive rec’s and has active prescriptions of 3+ encoded meds.
4. Currently, if patient on DM meds but not metformin, then we rec metformin as well as second line drugs. Mike request that we only recommend metformin; if metformin has absolute contra, then rec second line drugs.
5. Add dorzolamide to drug mapping table and ADR ingredient table (do before deployment after refactor of tables).

1. If a patient has a diagnosis of DM-1 and DM-2, recommendations are still provided, and a message is issued: “Pt has Dx of both type 1 and type 2 DM. If pt has type 1 DM, these recommendations are not appropriate.” [↑](#footnote-ref-1)
2. The display order of drug recommendations is not completely controlled by the encoding in the KB. Order is a function of the presence or absence of indications and contraindications and how the Graphical User Interface (GUI) processes the information. [↑](#footnote-ref-2)
3. These additional reactions are not encoded in the KB but handled by mapping table. [↑](#footnote-ref-3)
4. There are some bicarbonate laboratory measurements that have a slightly lower limit of normal (22, 23). For simplicity, we have used the highest (and most conserative) cut off. [↑](#footnote-ref-4)
5. ULN = Upper Limit of Normal [↑](#footnote-ref-5)
6. These additional reactions are not encoded directly in the KB, but are in the ADR reaction mapping table as “angioedema”. [↑](#footnote-ref-6)
7. ADRs to sulfa drugs and other sulfonylureas will be displayed in the GUI as a relative contraindication when glipizide is recommended, even though the EON recommendation output marks them as ADRs. The display of these ADRs that are not absolute contraindications is handled by the GUI and not by the KB. See Appendix I: Dealing with Adverse Reactions (ADRs) for more detail. [↑](#footnote-ref-7)
8. Non-encoded drugs are any diabetes medications not included on the list of encoded drugs, described in the Limitations section above. The non-encoded drug will be displayed in a message. For the list of non-encoded drugs, see

   List of Non-encoded Drugs. [↑](#footnote-ref-8)